Industrial Device Server
IDSW-S011 User's Manual

LCSI

www.lcsi.com.tw

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1

Getting to Know Your Device Server

1.1 About the IDSW-S011 Serial Device Server

IDSW-S011 is an innovative 1 port RS232/422/485 to 802.11b/g WLAN and 1 port LAN device server. Users are able to configure IDSW-S011 by DS-Tool via LAN port or WLAN interface, but not simultaneously. Once LAN port is activated, WLAN interface will enter standby mode to minimize power consumption. Secondly, IDSW-S011 can simultaneously transfer data into 5 host PCs. This feature can assure all critical data that saved in different host PCs to avoid ethernet break or host PCs failure. Thirdly, IDSW-S011 provides dual redundant power inputs both on DC power jack and terminal block. IDSW-S011 also provides NAT pass through function so that users are able to manage IDSW-S011 inside or outside NAT router. It is easy for different IP domain users to use the Switch. Therefore, IDSW-S011 is the best communication solution for wireless application of serial devices.

1.2 Software Features

- High Speed Air Connectivity: WLAN interface support up to 54Mbps link speed
- Highly Security Capability: WEP/WPA/WPA2/802.1X/Radius/TKIP supported
- NAT-pass through: User can manage IDSW-S011 through NAT router
- Redundant Power Inputs: 12~48VDC on power jack and terminal block
- Redundant multiple host devices: 5 simultaneous in Virtual COM, TCP Server, TCP Client mode, UDP
- Secured Management by HTTPS and SSH
- Versatile Modes: Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP

- Event Warning by Syslog, Email, SNMP trap, and Beeper
- Various Windows O.S. supported: Windows NT/2000/ XP/ 2003/VISTA

1.3 Hardware Features

- Redundant Power Inputs: 12~48 VDC on terminal block and power jack
- Operating Temperature: -10 to 55°C
- Storage Temperature: -20 to 85 °C
- Operating Humidity: 5% to 95%, non-condensing
- Casing: IP-30
- 1 10/100Base-T(X) Ethernet port
- Reverse SMA connector for 2.4GHz antenna
- Dimensions(W x D x H) : 72mm(W)x125 mm(D)x31mm(H)

2

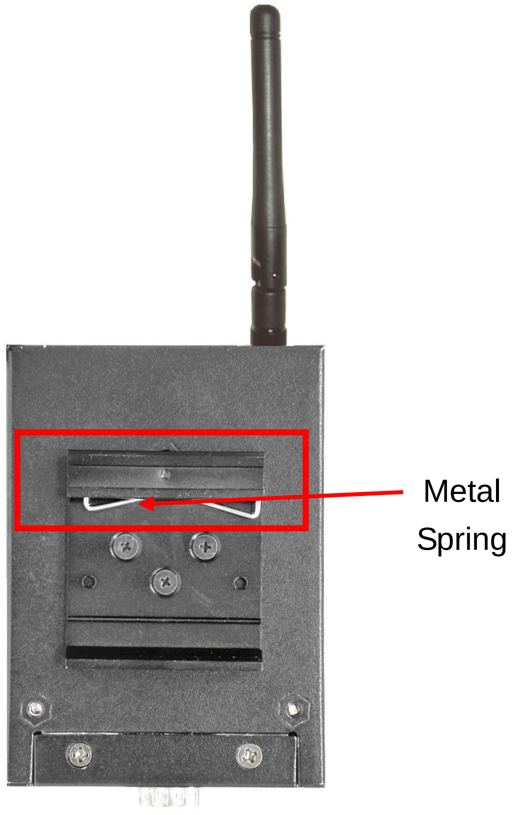
Hardware Installation

2.1 Install IDSW-S011 on DIN-Rail

Each IDSW-S011 has a Din-Rail kit on rear panel. The Din-Rail kit helps IDSW-S011 to fix on the Din-Rail. It is easy to install the IDSW-S011 on the Din-Rail:

2.1.1 Mount IDSW-S011 on DIN-Rail

Step 1: Slant the IDSW-S011 and mount the metal spring to Din-Rail.



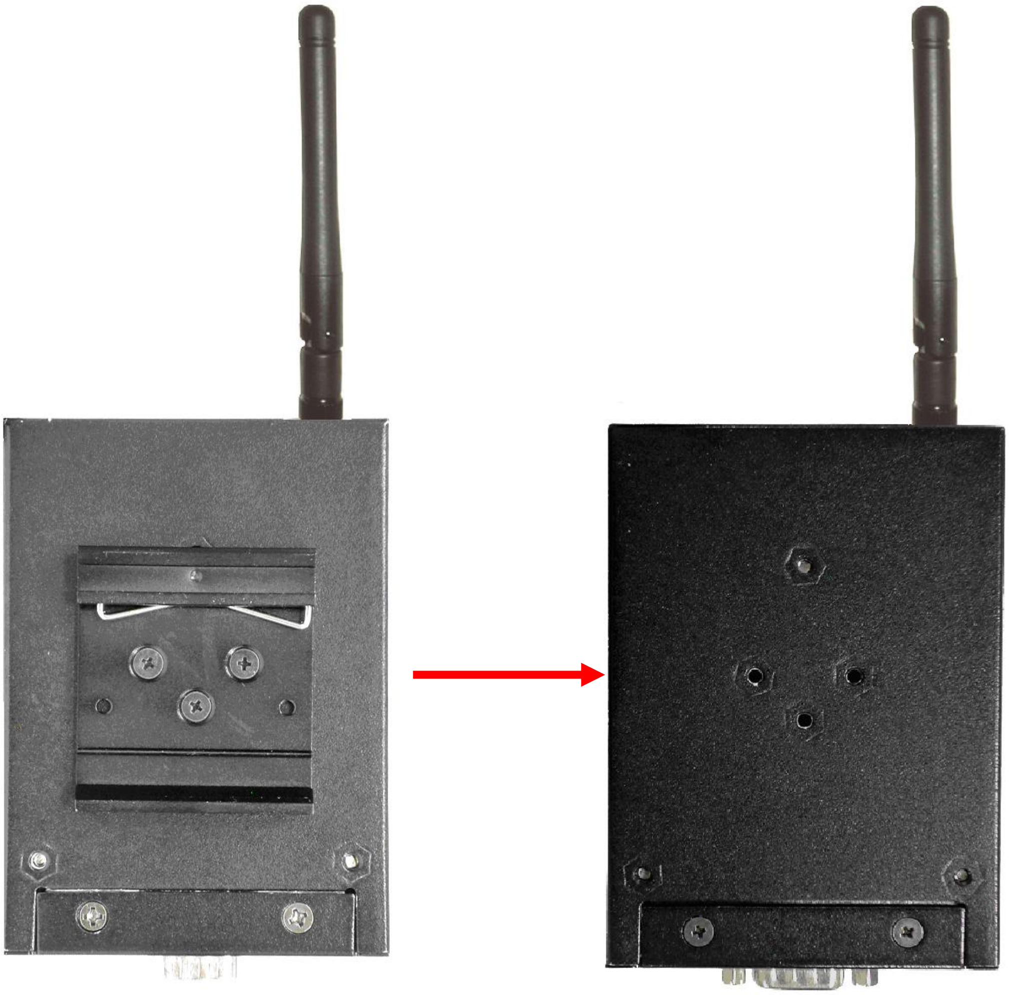
Step 2: Push the IDSW-S011 toward the Din-Rail until you heard a “click” sound.

2.2 Wall Mounting Installation

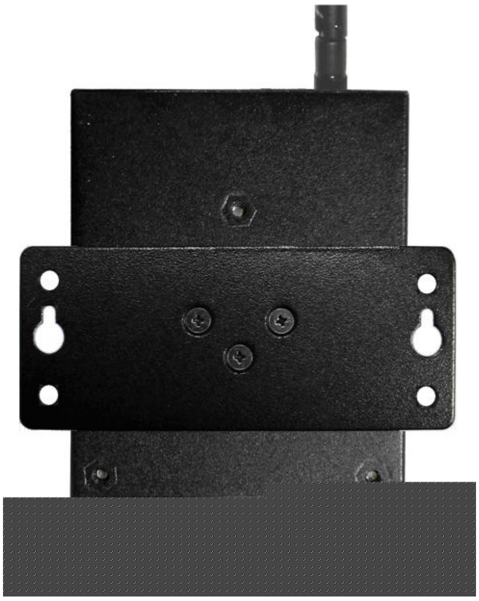
Each IDSW-S011 has another installation method. A wall mount panel can be found in the package. The following steps show how to mount the IDSW-S011 on the wall:

2.2.1 Mount IDSW-S011 on wall

Step 1: Remove Din-Rail kit.



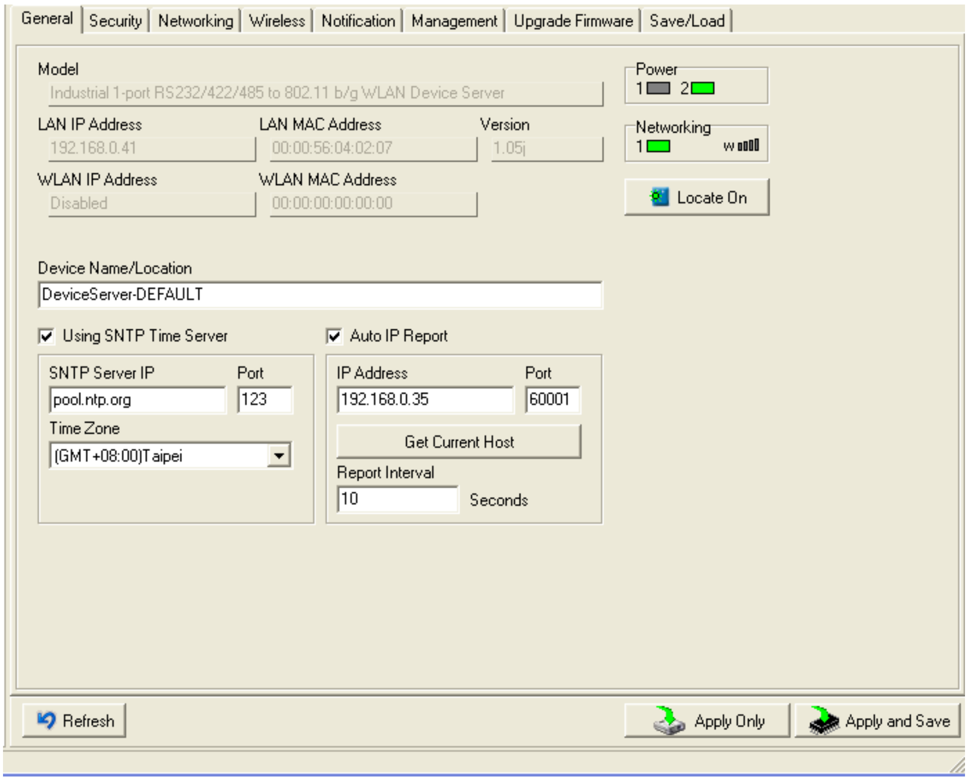
Step 2: Use 3 screws that can be found in the package to combine the wall mount panel. Just like the picture shows below:



5.1.2.2 Configure DS device servers

General settings

This page includes the setting of device name, SNTP server and Auto IP Report.


General
Security
Networking
Wireless
Notification
Management
Upgrade Firmware
Save/Load
Power
1
2
Networking
1
W
Locate On
Get Current Host
Refresh
Apply Only
Apply and Save

Model: Industrial 1-port RS232/422/485 to 802.11 b/g WLAN Device Server

LAN IP Address: 192.168.0.41
LAN MAC Address: 00:00:56:04:02:07
Version: 1.05j
WLAN IP Address: Disabled
WLAN MAC Address: 00:00:00:00:00:00

Device Name/Location: DeviceServer-DEFAULT

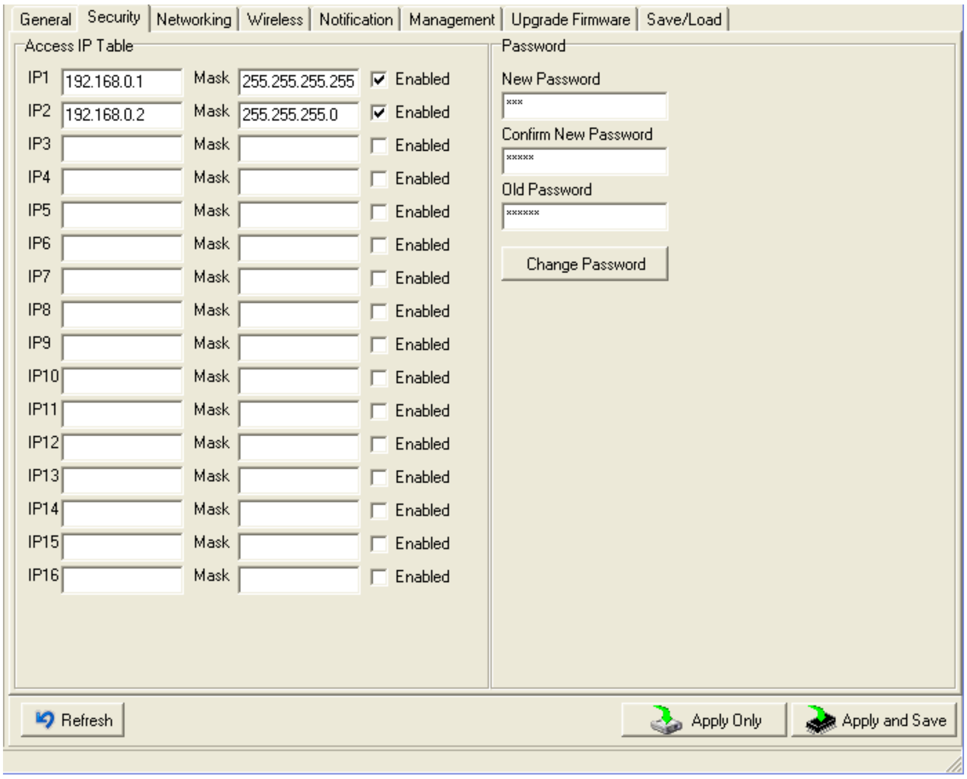
☑ Using SNTP Time Server
SNTP Server IP: pool.ntp.org
Port: 123
Time Zone: (GMT+08:00)Taipei

☑ Auto IP Report
IP Address: 192.168.0.35
Port: 60001
Report Interval: 10 Seconds

The following table describes the labels in this screen.

Label	Description
Device Name/location	You can set the device name or related information. By clicking “**Locate On**” button you can locate the serial server’s position.
Set SNTP	Input the SNTP server domain name or IP address, port and select the Time zone.
Set Auto IP Report	By Clicking the “**Get current Host**” button you will get your local IP, and then set the Report interval time. The device server will report its status periodically. At “**IP collection** “option show the device report information. The report interval is 0 indicate disable this setting (default), but you can set the other IP or Port.

Security


General
Security
Networking
Wireless
Notification
Management
Upgrade Firmware
Save/Load
Access IP Table
Password
Change Password
Refresh
Apply Only
Apply and Save

IP1	192.168.0.1	Mask	255.255.255.255	☑ Enabled
IP2	192.168.0.2	Mask	255.255.255.0	☑ Enabled
IP3		Mask		☐ Enabled
IP4		Mask		☐ Enabled
IP5		Mask		☐ Enabled
IP6		Mask		☐ Enabled
IP7		Mask		☐ Enabled
IP8		Mask		☐ Enabled
IP9		Mask		☐ Enabled
IP10		Mask		☐ Enabled
IP11		Mask		☐ Enabled
IP12		Mask		☐ Enabled
IP13		Mask		☐ Enabled
IP14		Mask		☐ Enabled
IP15		Mask		☐ Enabled
IP16		Mask		☐ Enabled

New Password: ***

Confirm New Password: *****

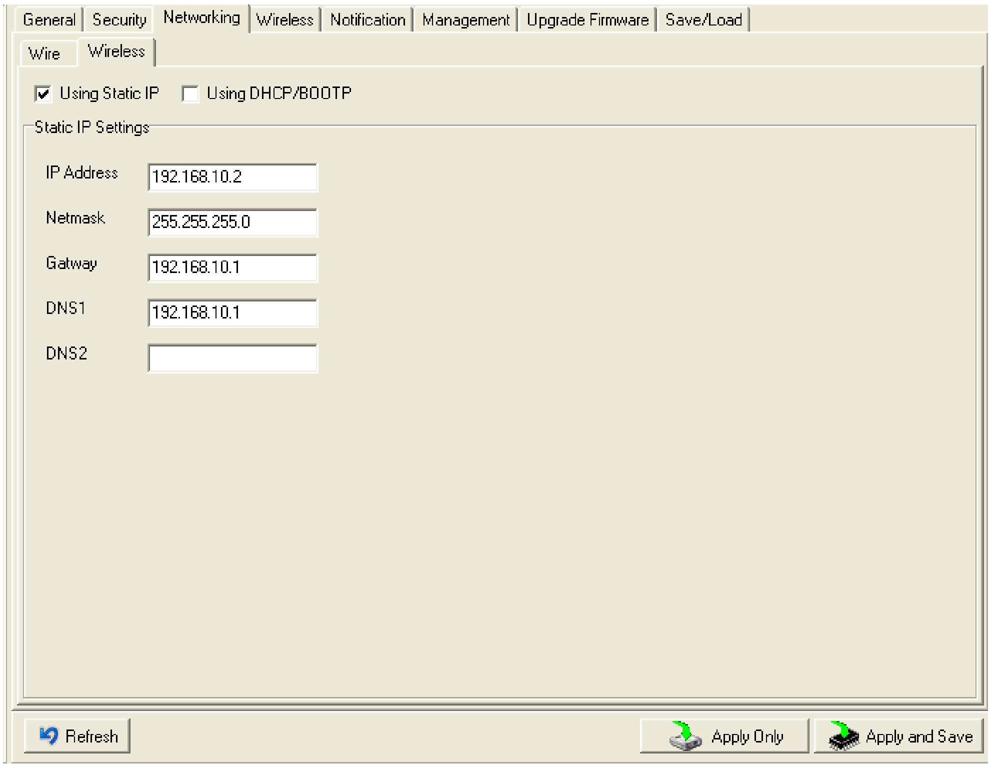
Old Password: ******

The following table describes the labels in this screen.

Label	Description
Accessible IP Setting	To prevent unauthorized access by setting host IP addresses and network masks. 1. Only one host with a special IP address can access the device server , "**IP address /255.255.255.255**" (e.g., "**192.168.0.1/255.255.255.255**"). 2. Hosts on a specific subnet can access the device server. "**IP address/255.255.255.0**" (e.g., "**192.168.0.2/255.255.255.0**") 3. Any host can access the device server. Disable this function by un-checking the "**Enable IP Filter**" checkbox
Password setting	You can set the password to prevent unauthorized access from your server. Factory default is no password.

Network Setting

Device DS can connect the Network by wire and wireless. You must assign a valid IP address for DS before attached in your network environment. Your network administrator should provide you the IP address and related settings. The IP address must be unique within the network (otherwise, DS will not have a valid connection to the network). You can choose from three possible "**IP configuration**" modes: Static, DHCP/BOOTP. The Factory Default IP address is "**192.168.10.2**"


General
Security
Networking
Wireless
Notification
Management
Upgrade Firmware
Save/Load
Wire
Wireless
Refresh
Apply Only
Apply and Save

☑ Using Static IP ☐ Using DHCP/BOOTP

Static IP Settings

IP Address 192.168.10.2
Netmask 255.255.255.0
Gatway 192.168.10.1
DNS1 192.168.10.1
DNS2

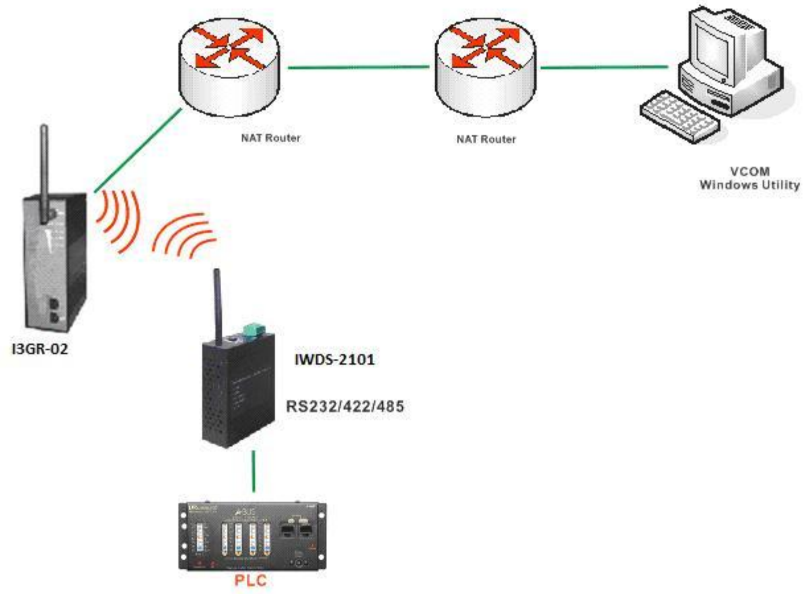
The following table describes the labels in this screen.

Label	Description
Using Static IP	Manually assigning an IP address.
Using DHCP/BOOTP	IP Address automatically assigned by a DHCP server in your network.
Subnet Mask	All devices on the network must have the same subnet mask to communicate on the network.
Gateway	Enter the IP address of the router in you network.
DNS Server	Enter the IP address of the DNS server, The DNS server translates domain names into IP address.

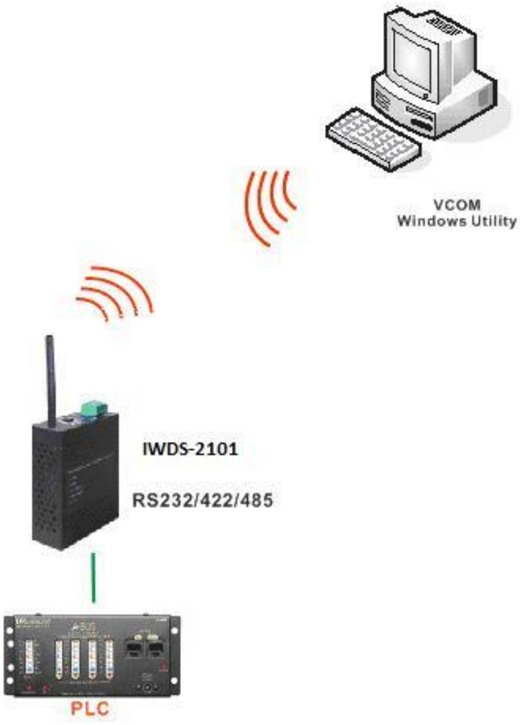
Wireless setting

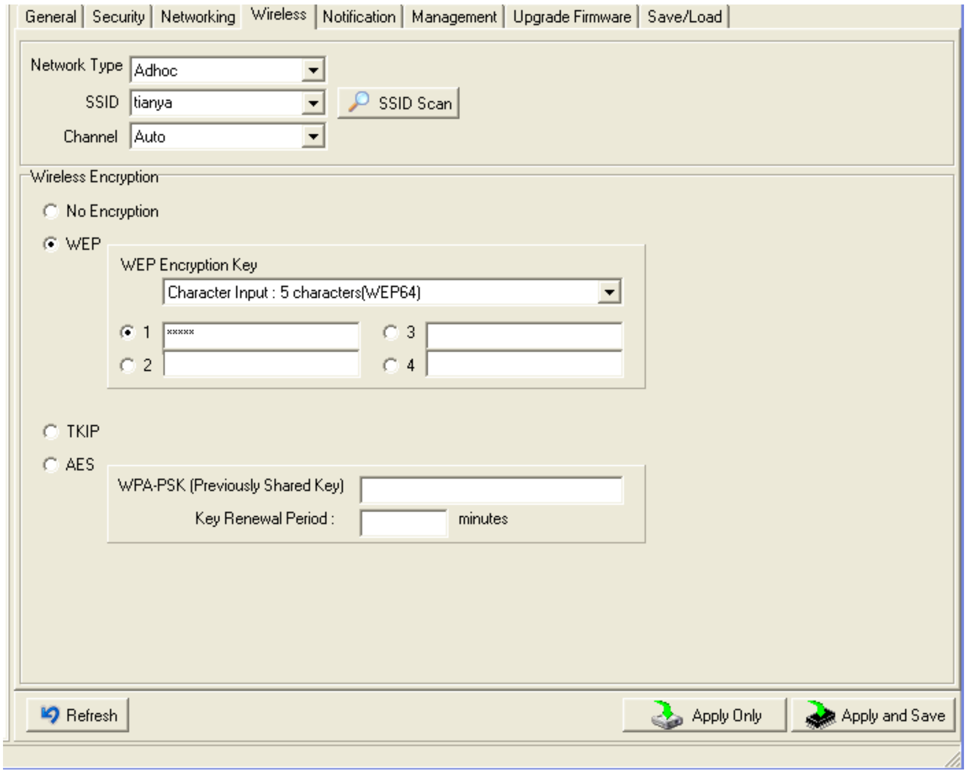
Wireless Network type includes two modes: Infra and Adhoc. The Infra type connects the network by wireless access point, but the Adhoc is formed by the association of wireless and mobile devices capable of communicating among themselves even when there is no networking infrastructure available.

Infra Network


NAT Router
NAT Router
VCOM
Windows Utility
I3GR-02
IWDS-2101
RS232/422/485
PLC

Adhoc Network


VCOM
Windows Utility
IWDS-2101
RS232/422/485
PLC


General
Security
Networking
Wireless
Notification
Management
Upgrade Firmware
Save/Load
SSID Scan
Wireless Encryption
No Encryption
TKIP
AES
WPA-PSK (Previously Shared Key)
Key Renewal Period :
minutes
Refresh
Apply Only
Apply and Save

Network Type: Adhoc
SSID: tianya
Channel: Auto

● WEP
WEP Encryption Key: Character Input : 5 characters(WEP64)
● 1 *****
○ 2
○ 3
○ 4

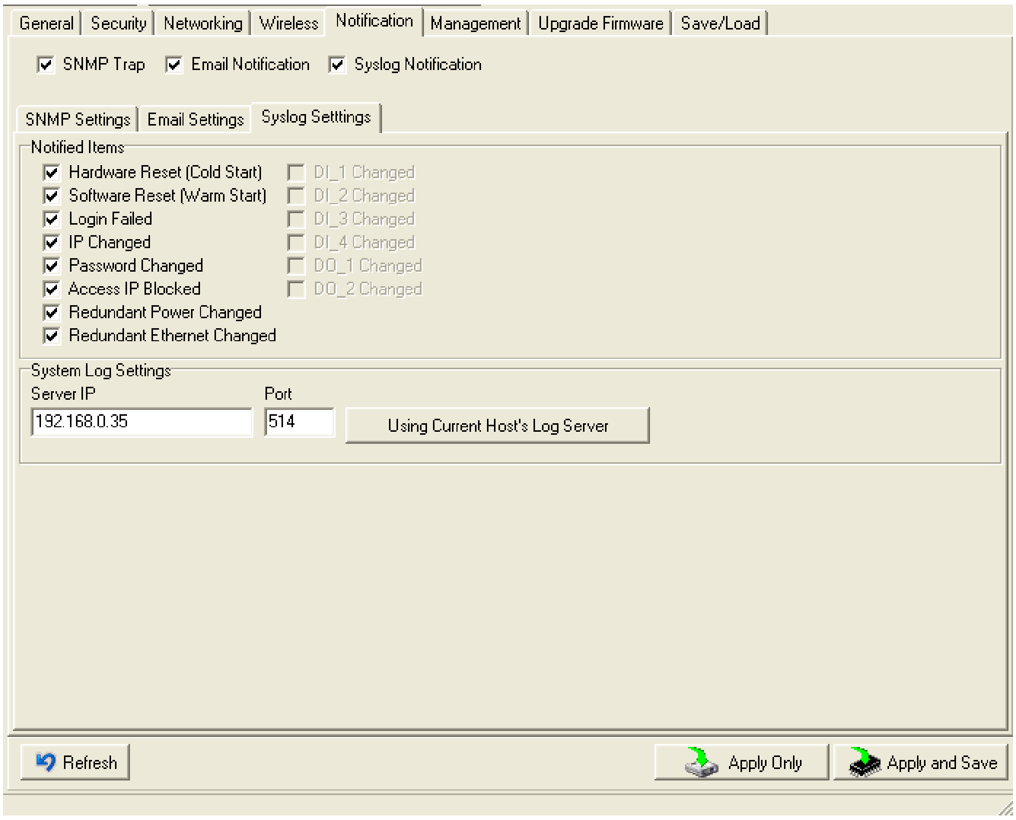
The following table describes the labels in this screen.

Label	Description
Network Type	Type includes Infra and Adhoc.
SSID	Service Set Identifier Default is the default setting. The SSID is a unique name that identifies a network. All devices on a network must share the same SSID name in order to communicate on the network.
Channel	All devices on the network must be set to the same channel to communicate on the network. You can select the Auto.
NO Encryption	You can set no encryption mode, but this mode is insecurity and don't suggest use.
WEP	You can set four encryption 5characters (WEP64), 13 characters (WEP128), 10 digits (WEP64), 26digits (WEP128).
TKIP	TKIP (Temporal Key Integrity Protocol) is a key management protocol.
AES	AES (Advanced Encryption System) is a variable bit length symmetric digital encryption algorithm.

**Simply unplug the RJ-45 to change into wireless connection*

Notification

Specify the events that should be notified to the administrator. The events can be notified by E-mail, SNMP trap, or system log.


General
Security
Networking
Wireless
Notification
Management
Upgrade Firmware
Save/Load
SNMP Settings
Email Settings
Syslog Settings
Using Current Host's Log Server
Refresh
Apply Only
Apply and Save

☑ SNMP Trap ☑ Email Notification ☑ Syslog Notification

Notified Items

☑ Hardware Reset (Cold Start)	☐ DI_1 Changed
☑ Software Reset (Warm Start)	☐ DI_2 Changed
☑ Login Failed	☐ DI_3 Changed
☑ IP Changed	☐ DI_4 Changed
☑ Password Changed	☐ DO_1 Changed
☑ Access IP Blocked	☐ DO_2 Changed
☑ Redundant Power Changed	
☑ Redundant Ethernet Changed	

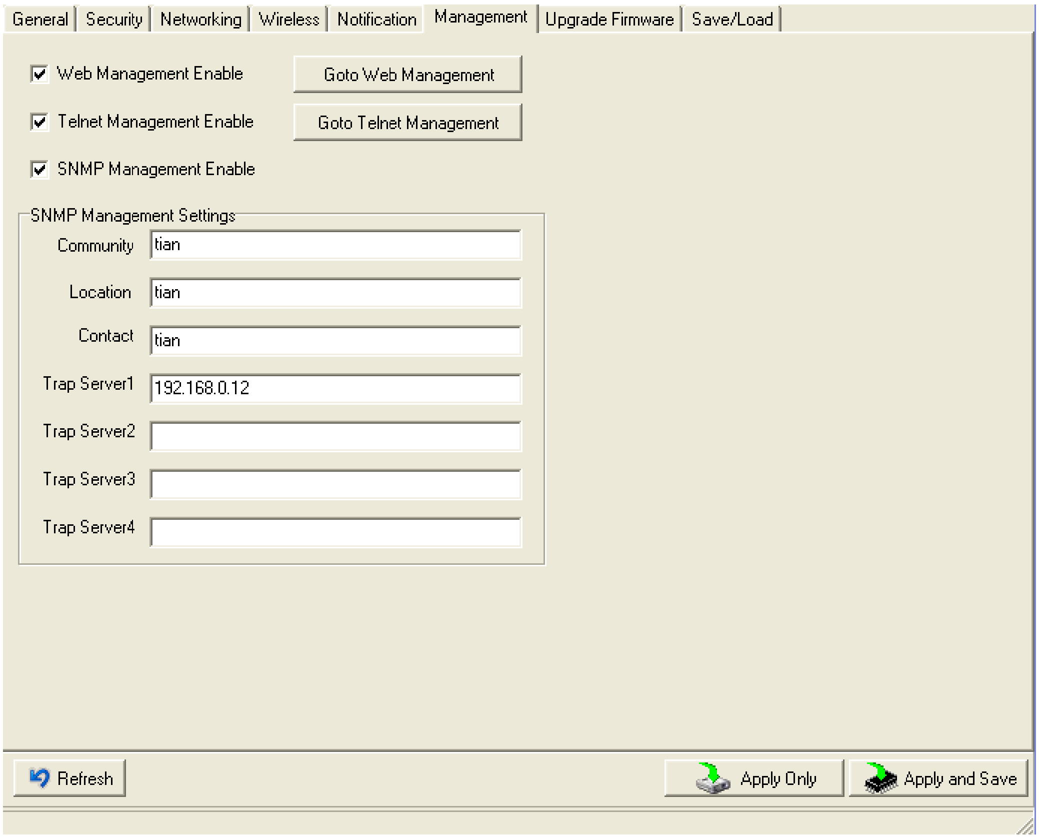
System Log Settings

Server IP: 192.168.0.35
Port: 514

The following table describes the labels in this screen.

Label	Description
SNMP Trap	To notify events information by SNMP trap.
Email Notification	To notify events information by Email.
Syslog Notification	To notify events information by SysLog. You can use the current Host's Log server by click **"Using Current Host's Log Server"** button. You also can set other log server. (DS-tool log server port default 514)
Notify items	The events to be notified.
Apply	Apply current setting, but the setting will be lost after reboot.
Apply and Save	Apply and save current setting. Write configuration into flash memory.

Management


General
Security
Networking
Wireless
Notification
Management
Upgrade Firmware
Save/Load
Goto Web Management
Goto Telnet Management
Refresh
Apply Only
Apply and Save

☑ Web Management Enable

☑ Telnet Management Enable

☑ SNMP Management Enable

SNMP Management Settings

Community: tian

Location: tian

Contact: tian

Trap Server1: 192.168.0.12

Trap Server2:

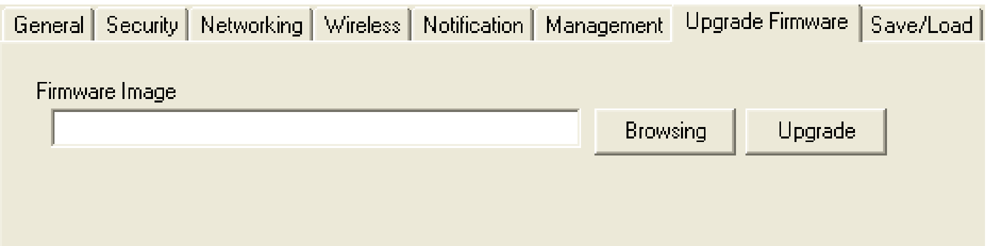
Trap Server3:

Trap Server4:

The following table describes the labels in this screen.

Label	Description
Web Management Enable	To enable management from Web. Click "**Goto Web Management**" button to access device web page, then set the device by web.
Telnet Management Enable	To enable management by Telnet(SSH). Click "**Goto Telnet Management**" button to execute Telnet command.
SNMP Management Enable	To enable management by SNMP.
SNMP Management Settings	To configure SNMP server related settings.

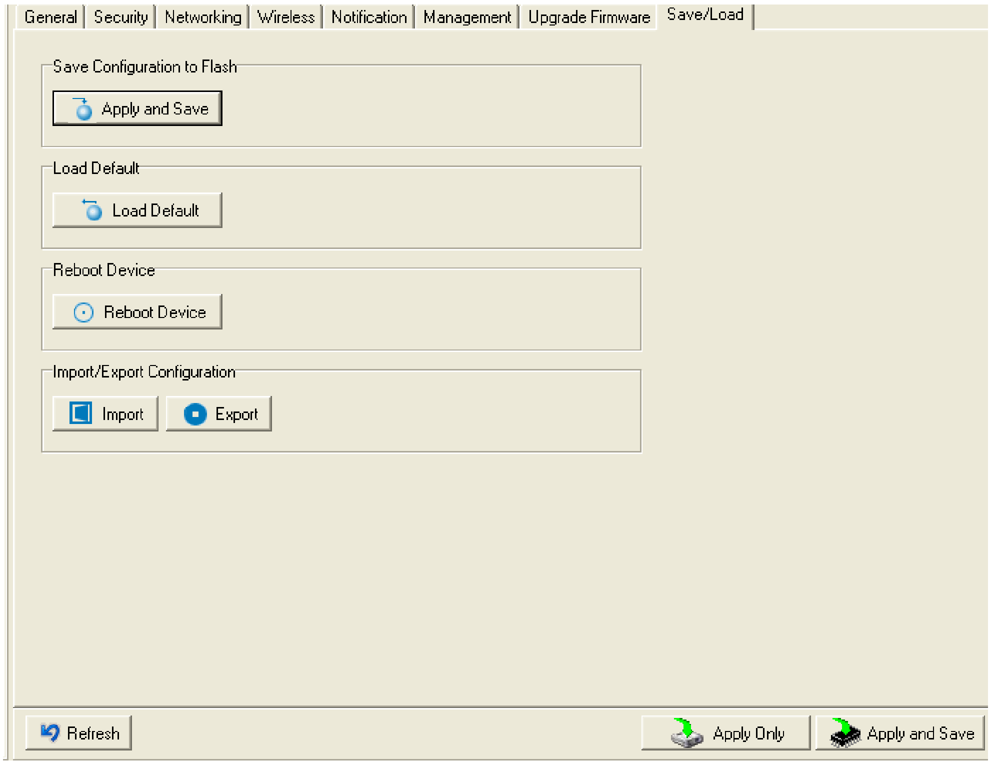
Upgrade Firmware


General
Security
Networking
Wireless
Notification
Management
Upgrade Firmware
Save/Load
Firmware Image
Browsing
Upgrade

The following table describes the labels in this screen.

Label	Description
Browsing	Browse the file and upgrade
Upgrade	Enable the firmware upgrade.

Save/Load


General
Security
Networking
Wireless
Notification
Management
Upgrade Firmware
Save/Load
Save Configuration to Flash
Apply and Save
Load Default
Load Default
Reboot Device
Reboot Device
Import/Export Configuration
Import
Export
Refresh
Apply Only
Apply and Save

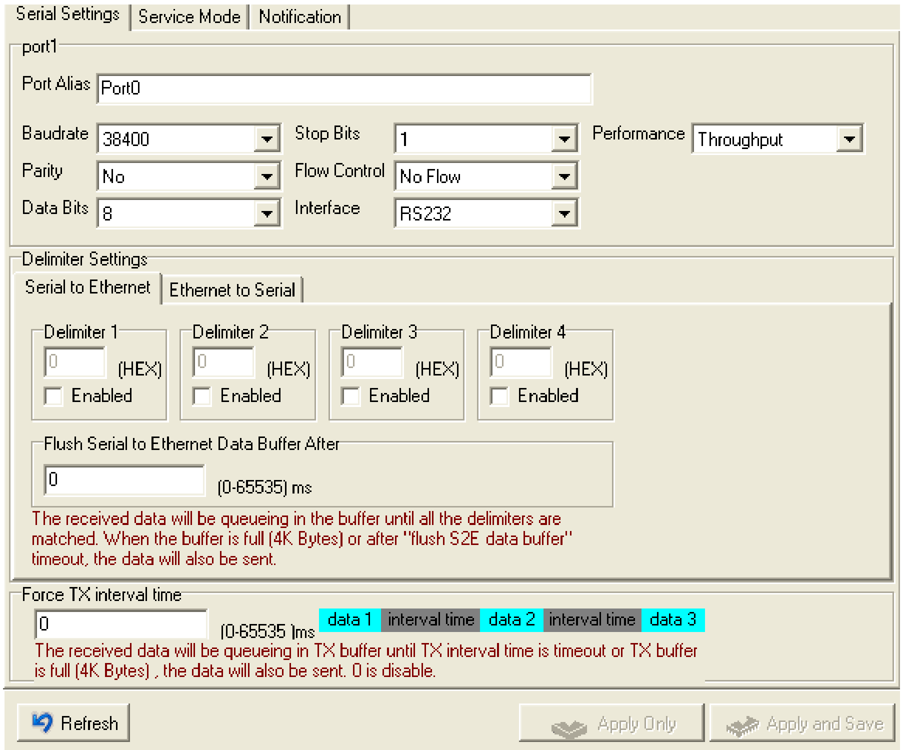
The following table describes the labels in this screen.

Label	Description
Save Configuration to Flash	Save current configuration into flash memory.

Load Default	Load default configuration except the network settings. If you want to load all factory default, you need to press "**Reset**" button on the device (Hardware restore).
Reboot Device	Reboot the device server (warm start).
Import Configuration	Restore the previous exported configuration.
Export Configuration	Export current configuration to a file to backup the configuration.

5.1.2.3 Configure serial port

Serial Settings



Serial Settings
Service Mode
Notification
port1
Delimiter Settings
Serial to Ethernet
Ethernet to Serial
Force TX interval time
data 1
interval time
data 2
interval time
data 3
Refresh
Apply Only
Apply and Save

Port Alias: Port0

Baudrate: 38400

Parity: No

Data Bits: 8

Stop Bits: 1

Flow Control: No Flow

Interface: RS232

Performance: Throughput

Delimiter 1: 0 (HEX) ☐ Enabled

Delimiter 2: 0 (HEX) ☐ Enabled

Delimiter 3: 0 (HEX) ☐ Enabled

Delimiter 4: 0 (HEX) ☐ Enabled

Flush Serial to Ethernet Data Buffer After: 0 (0-65535) ms

The received data will be queueing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "flush S2E data buffer" timeout, the data will also be sent.

Force TX interval time: 0 (0-65535)ms

The received data will be queueing in TX buffer until TX interval time is timeout or TX buffer is full (4K Bytes) , the data will also be sent. 0 is disable.

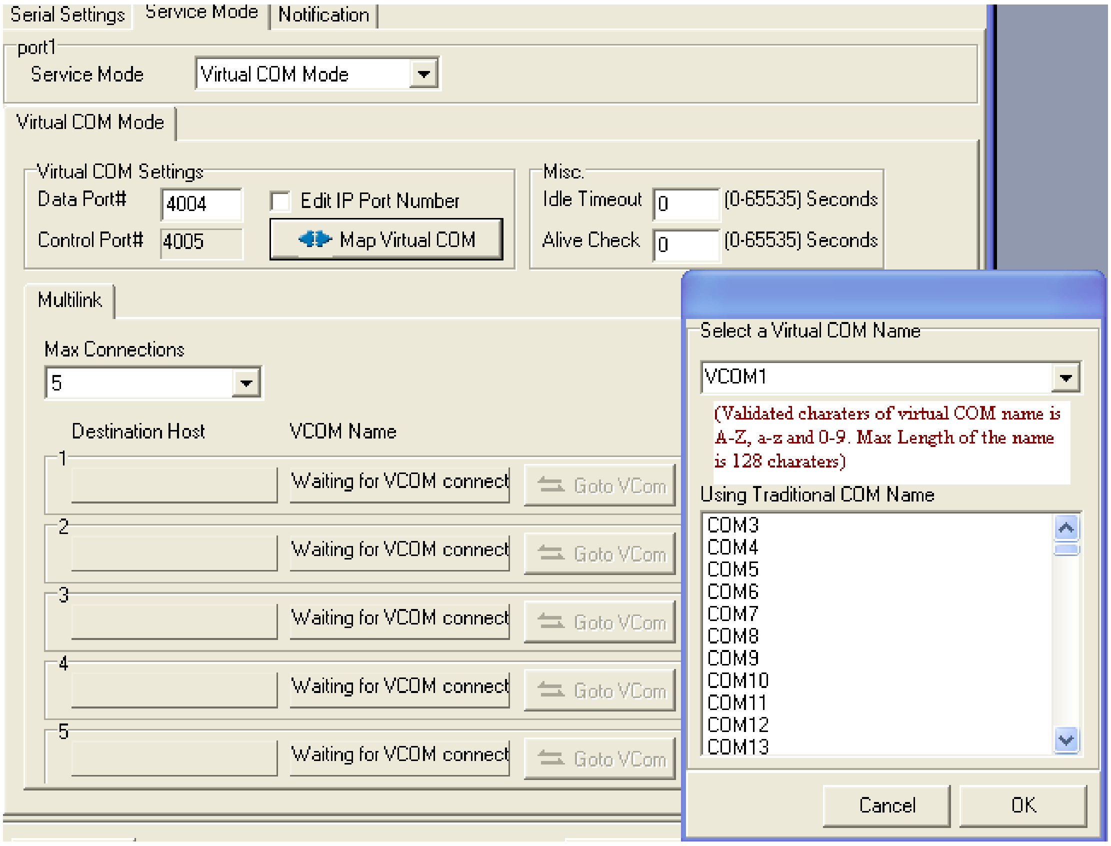
The following table describes the labels in this screen.

Label	Description
Port Alias	Remark the port to hint the connected device.
Interface	RS232 / RS422 / RS485(2-wires) / RS485(4-wires)
Baud rate	110bps/300bps/1200bps/2400bps/4800bps/9600bps/19200bps/ 38400bps/57600bps/115200bps/230400bps

Data Bits	5, 6, 7, 8
Stop Bits	1, 2 (1.5)
Parity	No, Even, Odd, Mark, Space
Flow Control	No, XON/XOFF, RTS/CTS, DTR/DSR
Performance	Throughput: This mode optimized for highest transmission speed. Latency: This mode optimized for shortest response time.
Serial to Ethernet	**Delimiter:** You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Serial to Ethernet data buffer**" times out. 0 means disable. Factory default is 0. **Flush Data Buffer After:** The received data will be queuing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush S2E data buffer**" timeout the data will also be sent. You can set the time from 0 to 65535 seconds.
Ethernet to Serial	**Delimiter:** You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Ethernet to Serial data buffer**" times out. 0 means disable. Factory default is 0. **Flush Data Buffer After:** The received data will be queuing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flushE2S data buffer**" timeout the data will also be sent. You can set the time from 0 to 65535 seconds.
Force TX Interval Time	Force TX interval time is to specify the timeout when no data has been transmitted. When the timeout is reached or TX buffer is full (4K Bytes), the queued data will be sent. 0 means disable. Factory default value is 0.

Service Mode – Virtual COM Mode

In Virtual COM Mode, the DS-Tool establishes a transparent connection between host and serial device by mapping the Port of the serial server serial port to local COM port on the host computer. Virtual COM Mode also supports up to 5 simultaneous connections, so that multiple hosts can send or receive data by the same serial device at the same time.


Serial Settings
Service Mode
Notification
Virtual COM Mode
Virtual COM Settings
Misc.
Map Virtual COM
Multilink
Destination Host
VCOM Name
1
2
3
4
5
Goto VCom
Cancel
OK

port1

Service Mode: Virtual COM Mode

Data Port# 4004

☐ Edit IP Port Number

Control Port# 4005

Idle Timeout 0 (0-65535) Seconds

Alive Check 0 (0-65535) Seconds

Max Connections 5

Waiting for VCOM connect

Waiting for VCOM connect

Waiting for VCOM connect

Waiting for VCOM connect

Waiting for VCOM connect

Select a Virtual COM Name: VCOM1

(Validated charaters of virtual COM name is A-Z, a-z and 0-9. Max Length of the name is 128 charaters)

Using Traditional COM Name

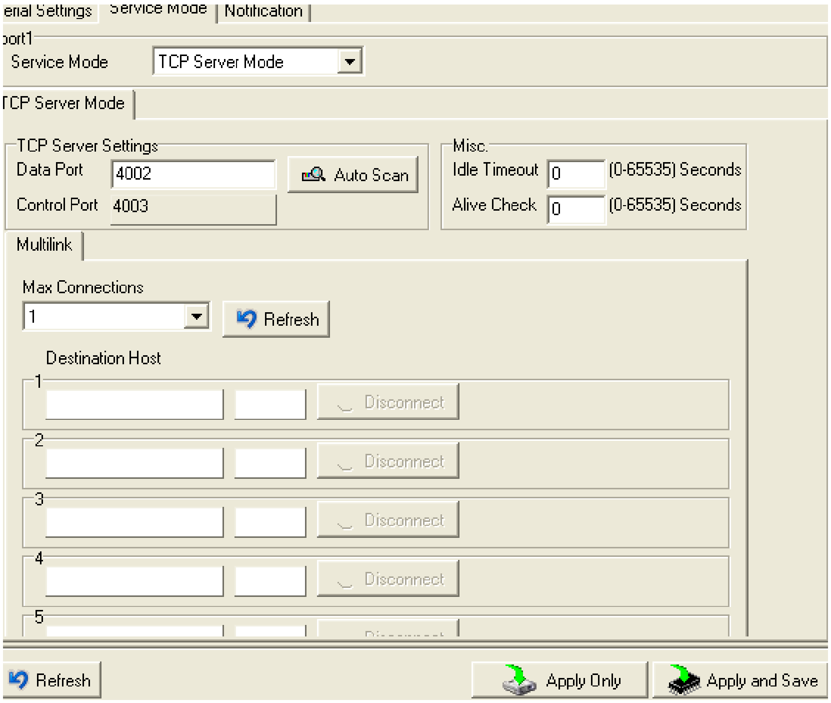
COM3
COM4
COM5
COM6
COM7
COM8
COM9
COM10
COM11
COM12
COM13

The following table describes the labels in this screen.

Label	Description
Map Virtual COM	Select a Virtual COM Name to map on.
Max Connection	The number of Max connection can support simultaneous connections are 5, default values is 1.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.

Service Mode – TCP Server Mode

In TCP Server Mode, DS is configured with a unique Port combination on a TCP/IP network. In this case, DS waits passively to be contacted by the device. After a connection is established, it can then proceed with data transmission. TCP Server mode also supports up to 5 simultaneous connections, so that multiple device can receive data from the same serial device at the same time.


erial Settings
Service Mode
Notification
ort1
TCP Server Mode
TCP Server Settings
Auto Scan
Misc.
Multilink
Refresh
Destination Host
1
2
3
4
5
Disconnect
Refresh
Apply Only
Apply and Save

Service Mode: TCP Server Mode

Data Port: 4002

Control Port: 4003

Idle Timeout: 0 (0-65535) Seconds

Alive Check: 0 (0-65535) Seconds

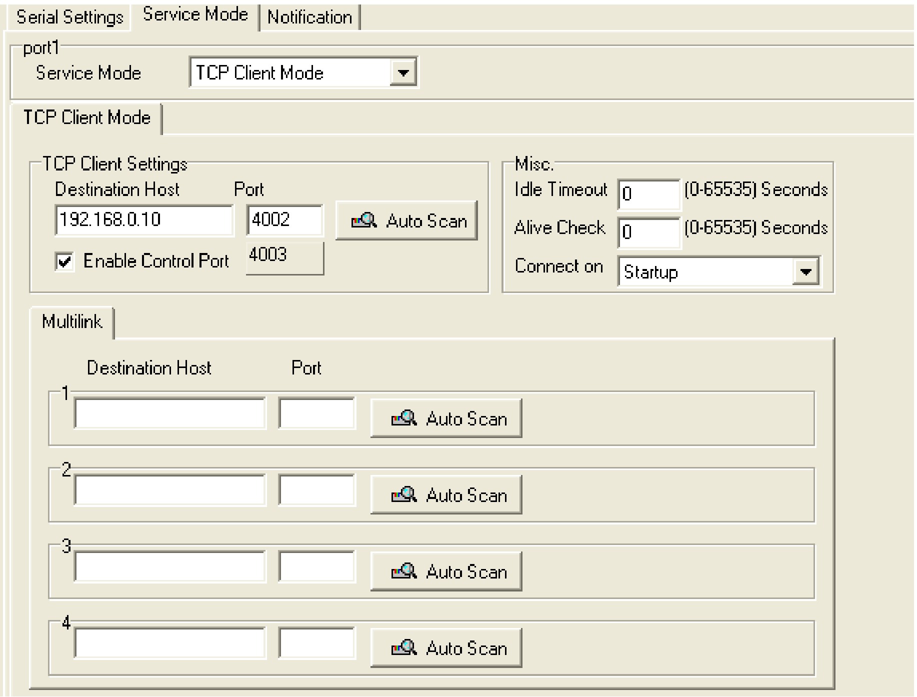
Max Connections: 1

The following table describes the labels in this screen.

Label	Description
Data Port	Set the port number for data transmission.
Auto Scan	Scan the data port automatically.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.
Max Connection	The number of Max connection can support simultaneous connections are 5, default values is 1.

Service Mode – TCP Client Mode

In TCP Client Mode, device can establish a TCP connection with server by the method you have settled (Startup or any character). After the data has been transferred, device can disconnect automatically from the server by using the TCP alive check time or idle time settings.


Serial Settings
Service Mode
Notification
port1
TCP Client Mode
TCP Client Settings
Misc.
Auto Scan
Multilink
Destination Host
Port
1
2
3
4
Auto Scan
Auto Scan
Auto Scan
Auto Scan

Service Mode: TCP Client Mode

Destination Host: 192.168.0.10
Port: 4002
☑ Enable Control Port: 4003

Idle Timeout: 0 (0-65535) Seconds
Alive Check: 0 (0-65535) Seconds
Connect on: Startup

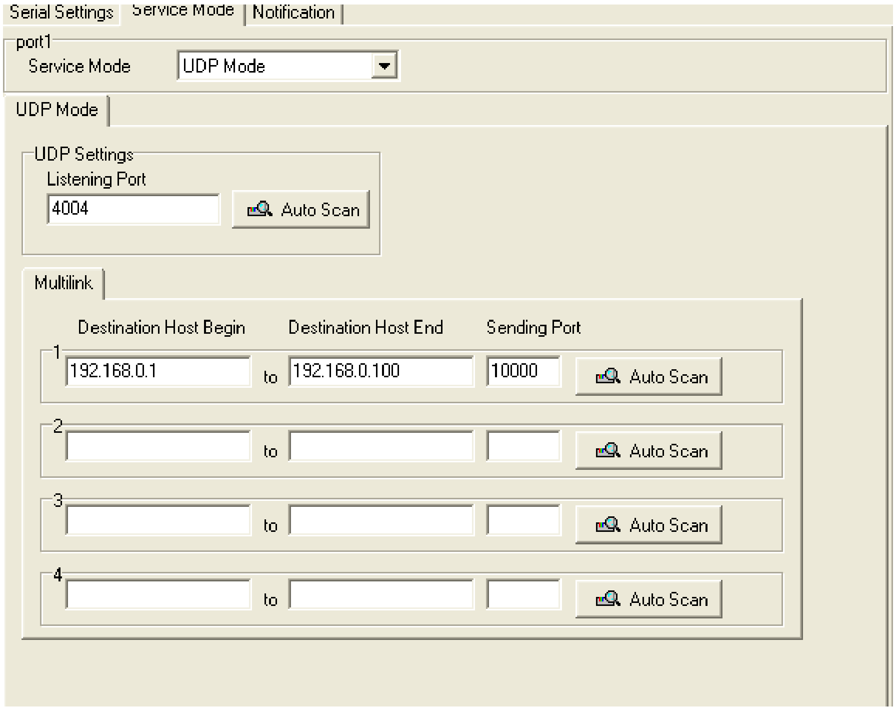
The following table describes the labels in this screen.

Label	Description
Destination Host	Set the IP address of host.
Port	Set the port number of data port.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.
Connect on Startup	The TCP Client will build TCP connection once the connected serial device is started.

Connect on Any Character	The TCP Client will build TCP connection once the connected serial device starts to send data.

Service Mode – UDP Client Mode

Compared to TCP communication, UDP is faster and more efficient. In UDP mode, you can Uni-cast or Multi-cast data from the serial device server to host computers, and the serial device can also receive data from one or multiple host


Serial Settings
Service Mode
Notification
Auto Scan
Auto Scan
Auto Scan
Auto Scan
Auto Scan

port1

Service Mode: UDP Mode

UDP Mode

UDP Settings

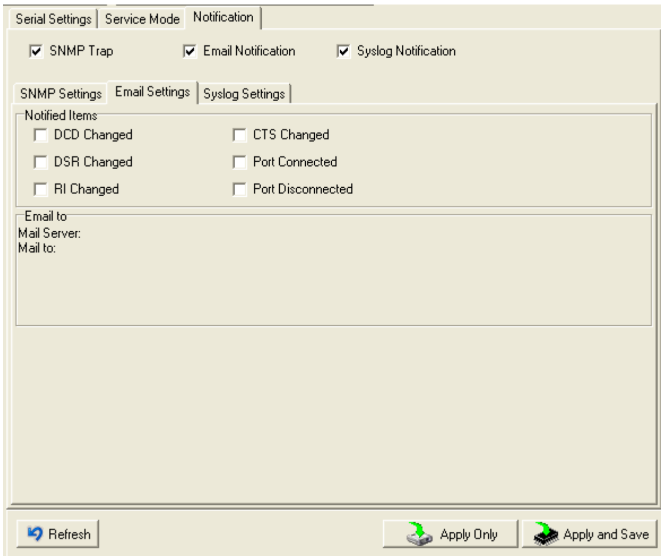
Listening Port: 4004

Multilink

	Destination Host Begin		Destination Host End	Sending Port
1	192.168.0.1	to	192.168.0.100	10000
2		to		
3		to		
4		to		

Notification

Specify the events that should be noticed. The events can be notified by E-mail, SNMP trap or system log.



☑ SNMP Trap ☑ Email Notification ☑ Syslog Notification

Notified Items

☐ DCD Changed ☐ CTS Changed
☐ DSR Changed ☐ Port Connected
☐ RI Changed ☐ Port Disconnected

Email to

Mail Server:
Mail to:

The following table describes the labels in this screen.

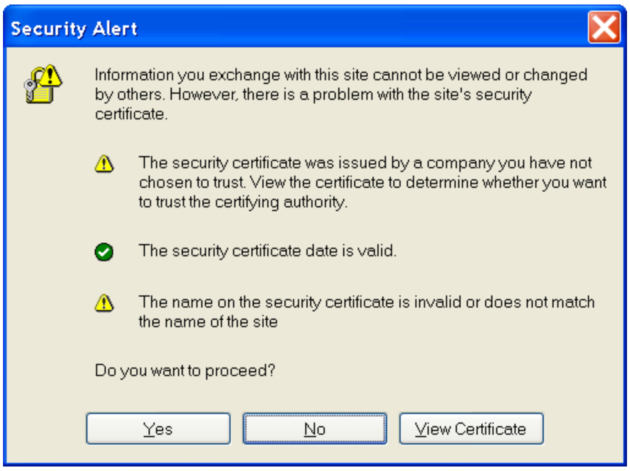
Label	Description
DCD changed	When DCD (Data Carrier Detect) signal changes, it indicates that the modem connection status has changed. Notification will be sent.
DSR changed	When DSR (Data Set Ready) signal changes, it indicates that the data communication equipment is powered off. A Notification will be sent.
RI changed	When RI (Ring Indicator) signal changes, it indicates that the incoming of a call. A Notification will be sent.
CTS changed	When CTS (Clear To Send) signal changes, it indicates that the transmission between computer and DCE can proceed. A notification will be sent.
Port connected	In TCP Server Mode, when the device accepts an incoming TCP connection, this event will be trigger. In TCP Client Mode, when the device has connected to the remote host, this event will be trigger. In Virtual COM Mode, Virtual COM is ready to use. A notification will be sent.
Port disconnected	In TCP Server/Client Mode, when the device lost the TCP link, this event will be trigger. In Virtual COM Mode, When Virtual COM is not available, this event will be trigger. A notification will be sent.

5.2 Configuration by Web Browser

5.2.1 Connect to the Web page

Step 1: Input the IP address of DS with "**https://192.168.10.2**" in the Address input box of IE.

Step 2: Click "**Yes**" button on the dialog box.



Security Alert

Information you exchange with this site cannot be viewed or changed by others. However, there is a problem with the site's security certificate.

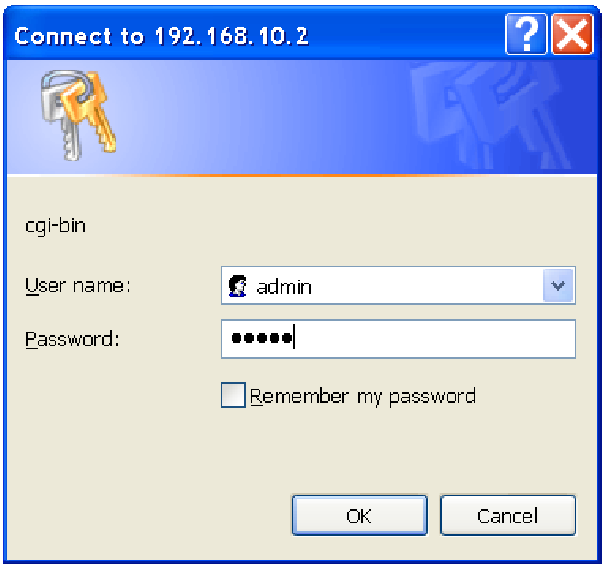
The security certificate was issued by a company you have not chosen to trust. View the certificate to determine whether you want to trust the certifying authority.

The security certificate date is valid.

The name on the security certificate is invalid or does not match the name of the site

Do you want to proceed?

Step 3: Input the name and password, then click "**OK**".



Connect to 192.168.10.2

cgi-bin

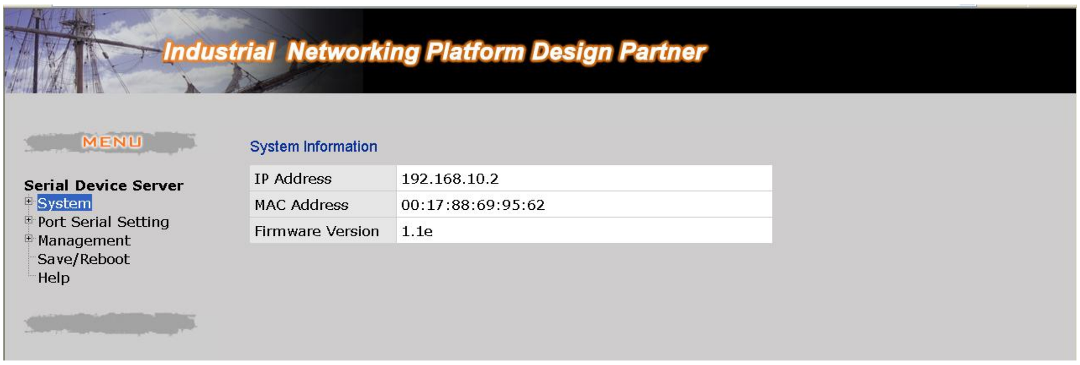
User name: admin

Password: •••••

☐ Remember my password

**Only if password is set*

Step 4: The system information will be shown as below.

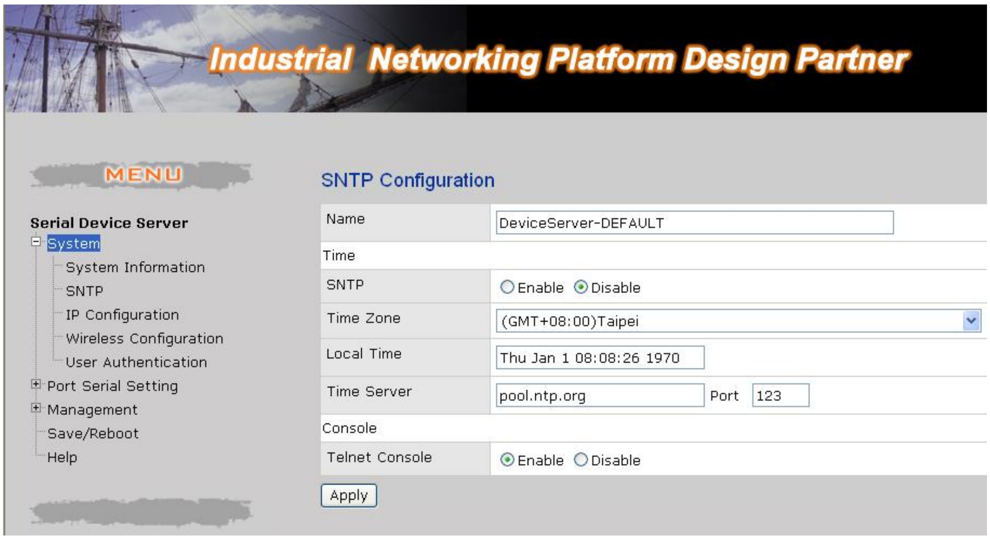

Industrial Networking Platform Design Partner
MENU
Serial Device Server
System
Port Serial Setting
Management
Save/Reboot
Help

System Information

IP Address	192.168.10.2
MAC Address	00:17:88:69:95:62
Firmware Version	1.1e

5.2.1.1 System

SNTP


Industrial Networking Platform Design Partner
MENU
Serial Device Server
System
System Information
SNTP
IP Configuration
Wireless Configuration
User Authentication
Port Serial Setting
Management
Save/Reboot
Help
Apply

SNTP Configuration

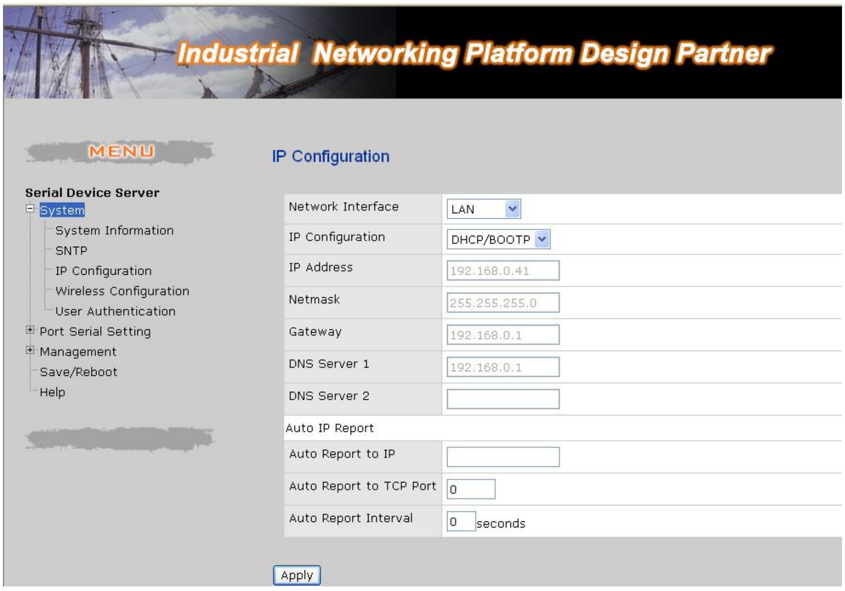
Name	DeviceServer-DEFAULT
Time	
SNTP	○ Enable ● Disable
Time Zone	(GMT+08:00)Taipei
Local Time	Thu Jan 1 08:08:26 1970
Time Server	pool.ntp.org Port 123
Console	
Telnet Console	● Enable ○ Disable

The following table describes the labels in this screen.

Label	Description
Name	You can set the name of DS
SNTP	Enable the SNTP server.
Time zone	After you set the SNTP enable, select the time zone you located.
Time server	Input SNTP server domain name or IP address and Port.
Console	Telnet Console (SSH) is included for security reasons. In some cases, you may need to disable this function to prevent unauthorized access from internet. The factory default is enable.

IP Configuration

You must assign a valid IP address for DS before attached in your network environment. Your network administrator should provide you with the IP address and related settings. The IP address must be unique and within the network (otherwise, DS will not have a valid connection to the network). You can choose from three possible "**IP configuration**" modes: Static, DHCP/BOOTP. The Factory Default IP address is "**192.168.10.2**"


Industrial Networking Platform Design Partner
MENU
Serial Device Server
System
System Information
SNTP
IP Configuration
Wireless Configuration
User Authentication
Port Serial Setting
Management
Save/Reboot
Help
Apply

IP Configuration

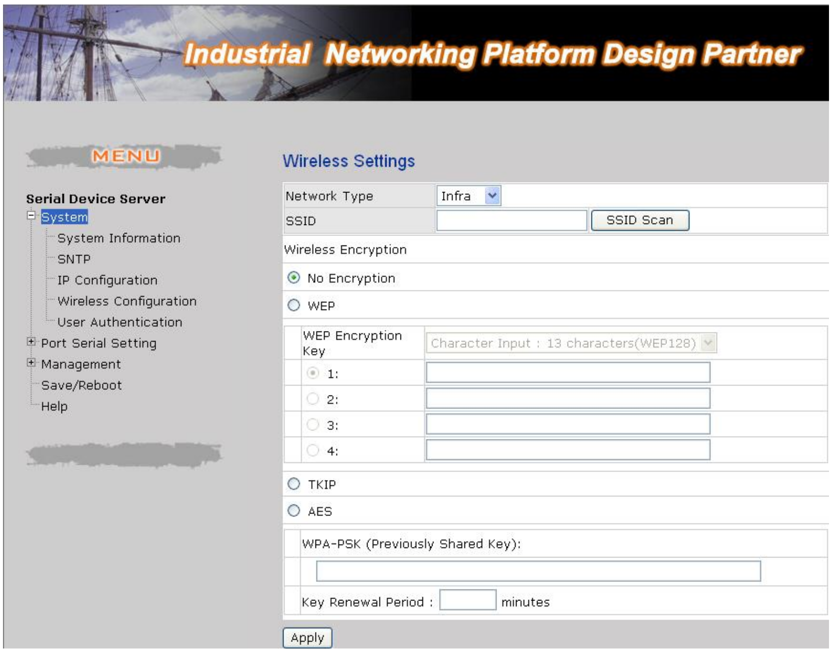
Network Interface	LAN
IP Configuration	DHCP/BOOTP
IP Address	192.168.0.41
Netmask	255.255.255.0
Gateway	192.168.0.1
DNS Server 1	192.168.0.1
DNS Server 2	
Auto IP Report	
Auto Report to IP	
Auto Report to TCP Port	0
Auto Report Interval	0 seconds

The following table describes the labels in this screen.

Label	Description
Network Type	Include Lan and Wireless.
DHCP/BOOTP	Obtain the IP address automatically from DHCP server.
Static IP Address	Assigning an IP address manually.
Subnet Mask	Set the subnet mask to communicate on the network.
Gateway	Enter the IP address of the router in you network.
DNS Server	Enter the IP address of the DNS server to translate domain names into IP address.
Auto IP Report	Set the report IP address and TCP port (60001 DS-tool default), then the device server will report it status periodically. At DS-Tool->IP collection option show the device server status. The report interval is 0 indicate disable this setting (default). Also you can set the other IP or Port.

Wireless setting

Wireless Network type include two mode, Infra and Adhoc. The Infra type connect the network by wireless access point, but the Adhoc is formed by the association of wireless and mobile devices capable of communicating among themselves even if there is no networking infrastructure available.


Industrial Networking Platform Design Partner
MENU
Serial Device Server
System
System Information
SNTP
IP Configuration
Wireless Configuration
User Authentication
Port Serial Setting
Management
Save/Reboot
Help
SSID Scan
Apply

Wireless Settings

Network Type: Infra

SSID:

Wireless Encryption

● No Encryption

○ WEP

WEP Encryption Key: Character Input : 13 characters(WEP128)

● 1:

○ 2:

○ 3:

○ 4:

○ TKIP

○ AES

WPA-PSK (Previously Shared Key):

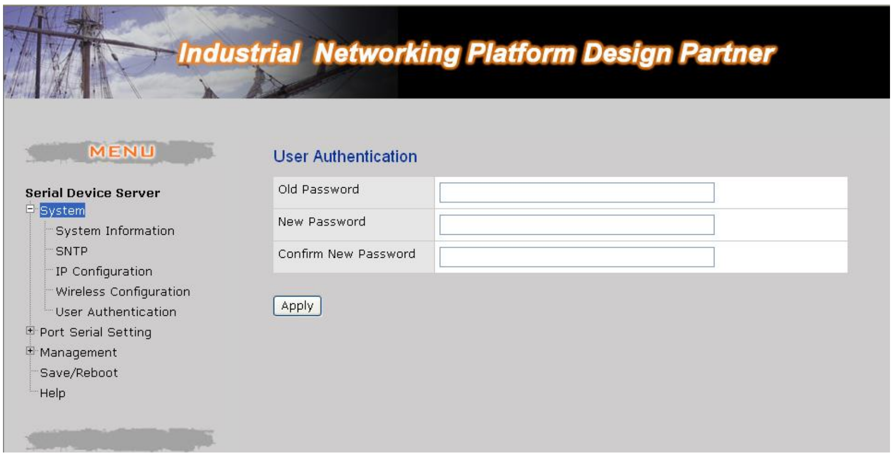
Key Renewal Period : minutes

The following table describes the labels in this screen.

Label	Description
Network Type	Type include Infra and Adhoc.
SSID	Service Set Identifier Default is the default setting. The SSID is a unique name that identifies a network. All devices on a network must share the same SSID name in order to communicate on the network.
Channel	All devices on the network must be set to the same channel to communicate on the network. You can select the Auto.
NO Encryption	You can set no encryption mode, but this mode is insecurity and we don’t suggest to use it.
WEP	You can set four encryption 5 characters (WEP64),13 characters(WEP128), 10 digits(WEP64),26 digits(WEP128).
TKIP	TKIP (Temporal Key Integrity Protocol) is a key management protocol.
AES	AES (Advanced Encryption System) is a variable bit length symmetric digital encryption algorithm.

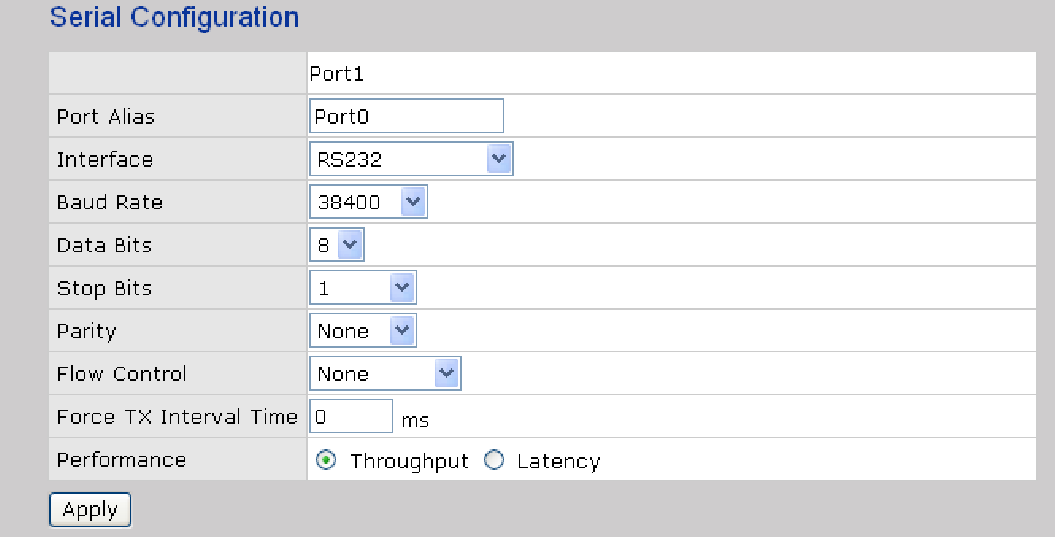
Authentication

You can set the password to prevent unauthorized access from network. Input the "**Old password**" and "**New password**" to change the password. Factory default is no password.


Industrial Networking Platform Design Partner
MENU
Serial Device Server
System
System Information
SNTP
IP Configuration
Wireless Configuration
User Authentication
Port Serial Setting
Management
Save/Reboot
Help
User Authentication
Old Password
New Password
Confirm New Password
Apply

5.2.1.2 Port serial setting

Serial configuration


Serial Configuration

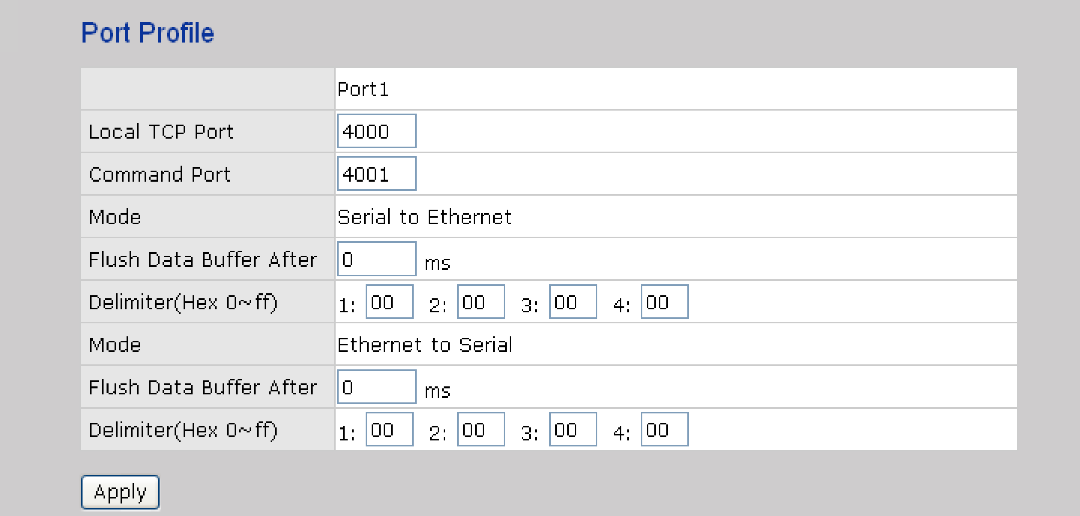
	Port1
Port Alias	Port0
Interface	RS232
Baud Rate	38400
Data Bits	8
Stop Bits	1
Parity	None
Flow Control	None
Force TX Interval Time	0 ms
Performance	● Throughput ○ Latency

The following table describes the labels in this screen.

Label	Description
Port Alias	Remark the port to hint the connected device.
Interface	RS232 / RS422 / RS485(2-wires) / RS485(4-wires)
Baud rate	110bps/300bps/1200bps/2400bps/4800bps/9600bps/19200bps/

	38400bps/57600bps/115200bps/230400bps
Data Bits	5, 6, 7, 8
Stop Bits	1, 2 (1.5)
Parity	No, Even, Odd, Mark, Space
Flow Control	No, XON/XOFF, RTS/CTS, DTR/DSR
Force TX Interval Time	Force TX interval time is to specify the timeout when no data has been transmitted. When the timeout is reached or TX buffer is full (4K Bytes), the queued data will be sent. 0 means disable. Factory default value is 0.
Performance	Throughput: This mode optimized for highest transmission speed. Latency: This mode optimized for shortest response time.
Apply	Activate settings on this page.

Port Profile



Port Profile

	Port1
Local TCP Port	4000
Command Port	4001
Mode	Serial to Ethernet
Flush Data Buffer After	0 ms
Delimiter(Hex 0~ff)	1: 00 2: 00 3: 00 4: 00
Mode	Ethernet to Serial
Flush Data Buffer After	0 ms
Delimiter(Hex 0~ff)	1: 00 2: 00 3: 00 4: 00

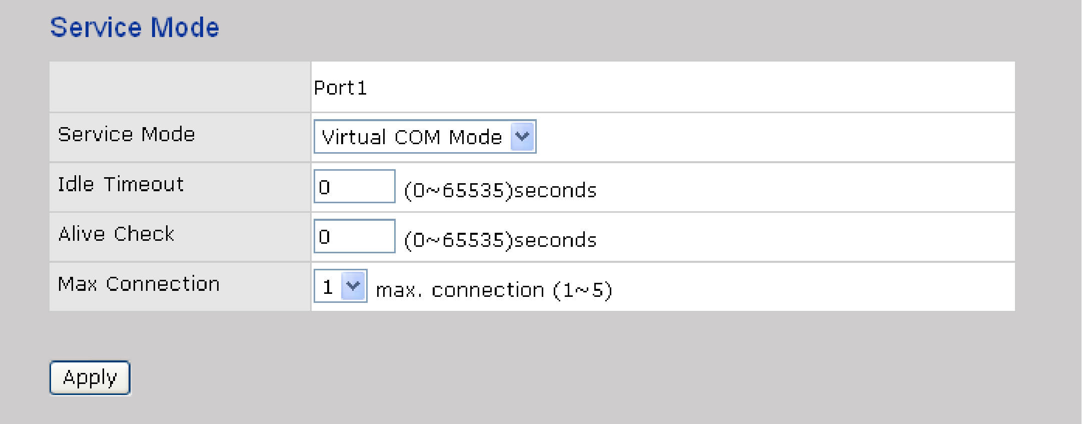
The following table describes the labels in this screen.

Label	Description
Serial to Ethernet	**Flush Data Buffer After:** The received data will be queued in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush S2E data buffer**" timeout, the data will also be sent. You can set the time from 0 to 65535 seconds. **Delimiter:** You can define max. 4 delimiters (00~FF, Hex) for each way. The

	data will be hold until the delimiters are received or the option "**Flush Serial to Ethernet data buffer**" times out. 0 means disable. Factory default is 0
Ethernet to serial	**Flush Data Buffer After:** The received data will be queued in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush E2S data buffer**" timeout, the data will also be sent. You can set the time from 0 to 65535 seconds. **Delimiter:** You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Ethernet to Serial data buffer**" times out. 0 means disable. Factory default is 0

Service Mode – Virtual COM Mode

In Virtual COM Mode, the driver establishes a transparent connection between host and serial device by mapping the Port of the serial server serial port to local COM port on the host computer. Virtual COM Mode also supports up to 5 simultaneous connections, so that multiple hosts can send or receive data by the same serial device at the same time.



Service Mode

	Port1
Service Mode	Virtual COM Mode
Idle Timeout	0 (0~65535)seconds
Alive Check	0 (0~65535)seconds
Max Connection	1 max. connection (1~5)

**Not allowed to mapping Virtual COM from web*

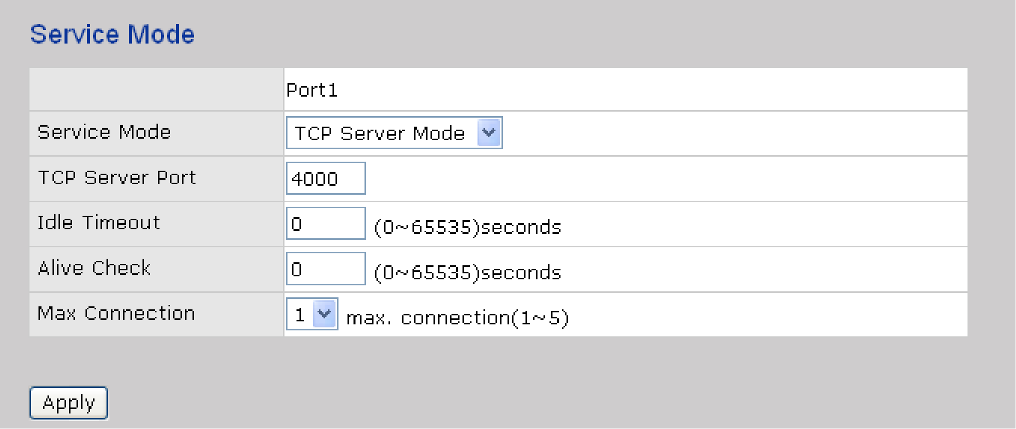
The following table describes the labels in this screen.

Label	Description
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function.

	Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.
Max Connection	The number of Max connection can support simultaneous connections are 5, default values is 1.

Service Mode – TCP Server Mode

In TCP Server Mode, DS is configured with a unique Port combination on a TCP/IP network. In this case, DS waits passively to be contacted by the device. After the device establishes a connection with the serial device, it can then proceed with data transmission. TCP Server mode also supports up to 5 simultaneous connections, so that multiple device can receive data from the same serial device at the same time.



Service Mode

	Port1
Service Mode	TCP Server Mode
TCP Server Port	4000
Idle Timeout	0 (0~65535)seconds
Alive Check	0 (0~65535)seconds
Max Connection	1 max. connection(1~5)

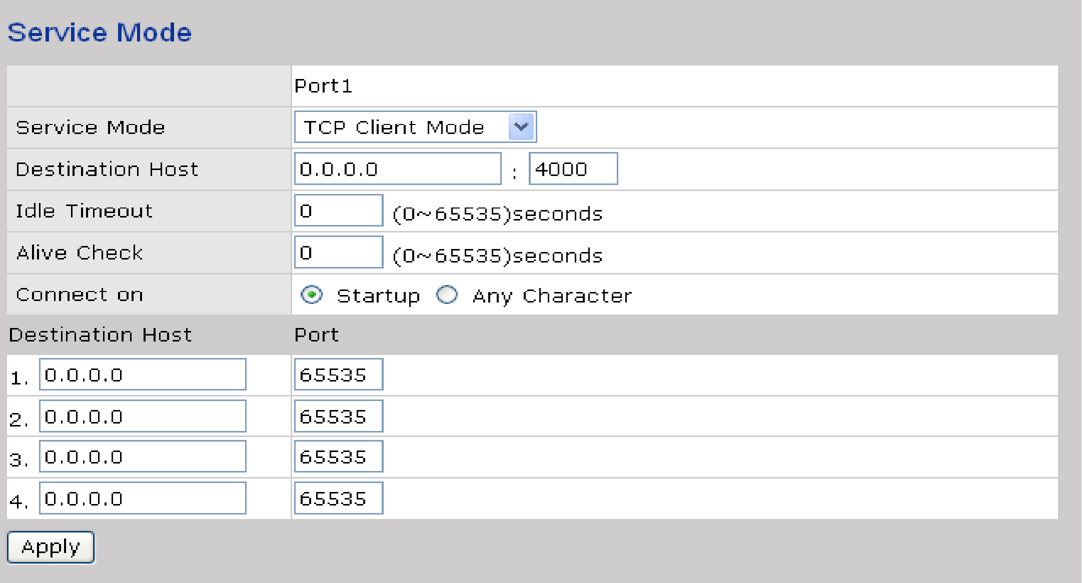
The following table describes the labels in this screen.

Label	Description
TCP Server Port	Set the port number for data transmission.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP

	connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.
Max Connection	Support up to 5 simultaneous connections are 5, default values is 1.

Service Mode – TCP Client Mode

In TCP Client Mode, device can establish a TCP connection with server by the method you have settled (Startup or any character). After the data has been transferred, device can disconnect automatically from the server by using the TCP alive check time or idle time settings.


Service Mode

	Port1
Service Mode	TCP Client Mode
Destination Host	0.0.0.0 : 4000
Idle Timeout	0 (0~65535)seconds
Alive Check	0 (0~65535)seconds
Connect on	● Startup ○ Any Character

Destination Host	Port
1. 0.0.0.0	65535
2. 0.0.0.0	65535
3. 0.0.0.0	65535
4. 0.0.0.0	65535

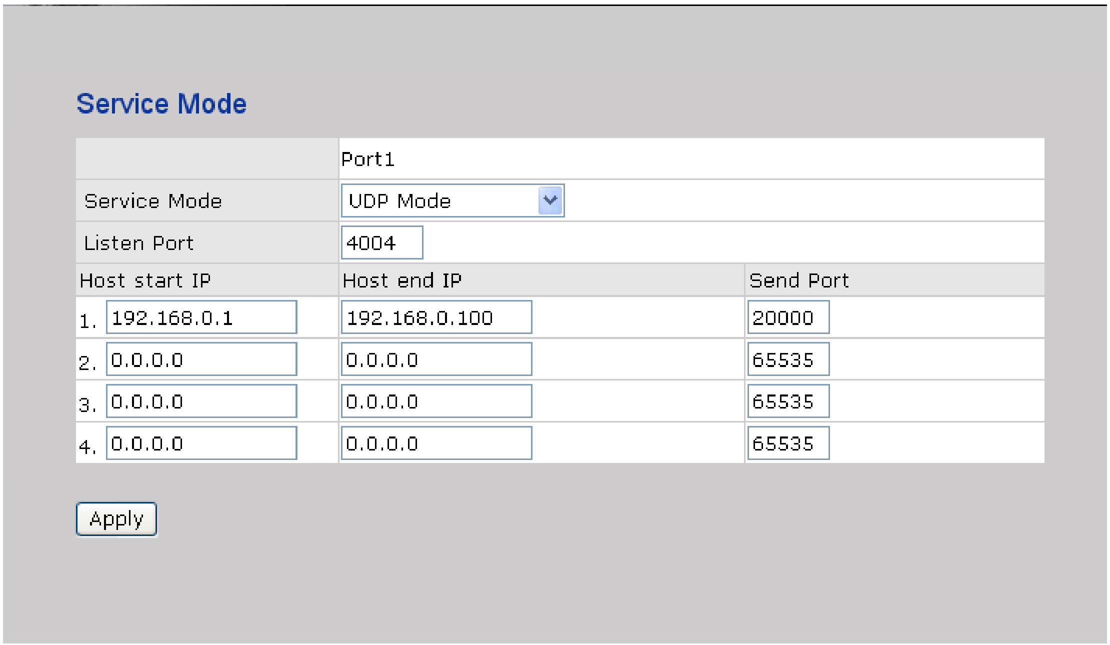
The following table describes the labels in this screen.

Label	Description
Destination Host	Set the IP address of host and the port number of data port. .
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function.

	Factory default is 0.
Connect on Startup	The TCP Client will build TCP connection once the connected serial device is started.
Connect on Any Character	The TCP Client will build TCP connection once the connected serial device starts to send data.

Service Mode – UDP Client Mode

Compared to TCP communication, UDP is faster and more efficient. In UDP mode, you can Uni-cast or Multi-cast data from the serial device server to host computers, and the serial device can also receive data from one or multiple host



Service Mode

	Port1	
Service Mode	UDP Mode	
Listen Port	4004	
Host start IP	Host end IP	Send Port
1. 192.168.0.1	192.168.0.100	20000
2. 0.0.0.0	0.0.0.0	65535
3. 0.0.0.0	0.0.0.0	65535
4. 0.0.0.0	0.0.0.0	65535

5.2.1.3 Management

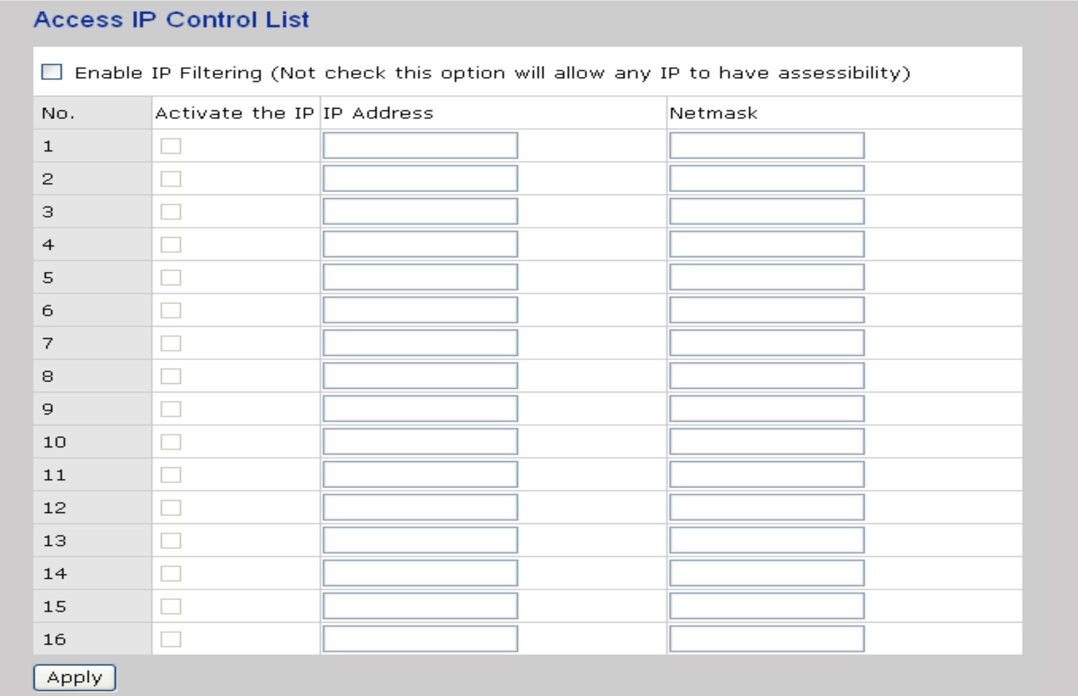
Accessible IP Settings

Accessible IP Settings allow you to add or block the remote host IP addresses to prevent unauthorized access. If host's IP address is in the accessible IP table, then the host will be allowed to access the DS. You can choose one of the following cases by setting the parameter.

1. Only one host with a special IP address can access the device server, "**IP address /255.255.255.255**" (e.g., "**192.168.0.1/255.255.255.255**").
2. Hosts on a specific subnet can access the device server. "**IP**

address/255.255.255.0" (e.g., "**192.168.0.2/255.255.255.0**")

3. Any host can access the device server. Disable this function by un-checking the "**Enable IP Filter**" checkbox



Access IP Control List

☐ Enable IP Filtering (Not check this option will allow any IP to have assessibility)

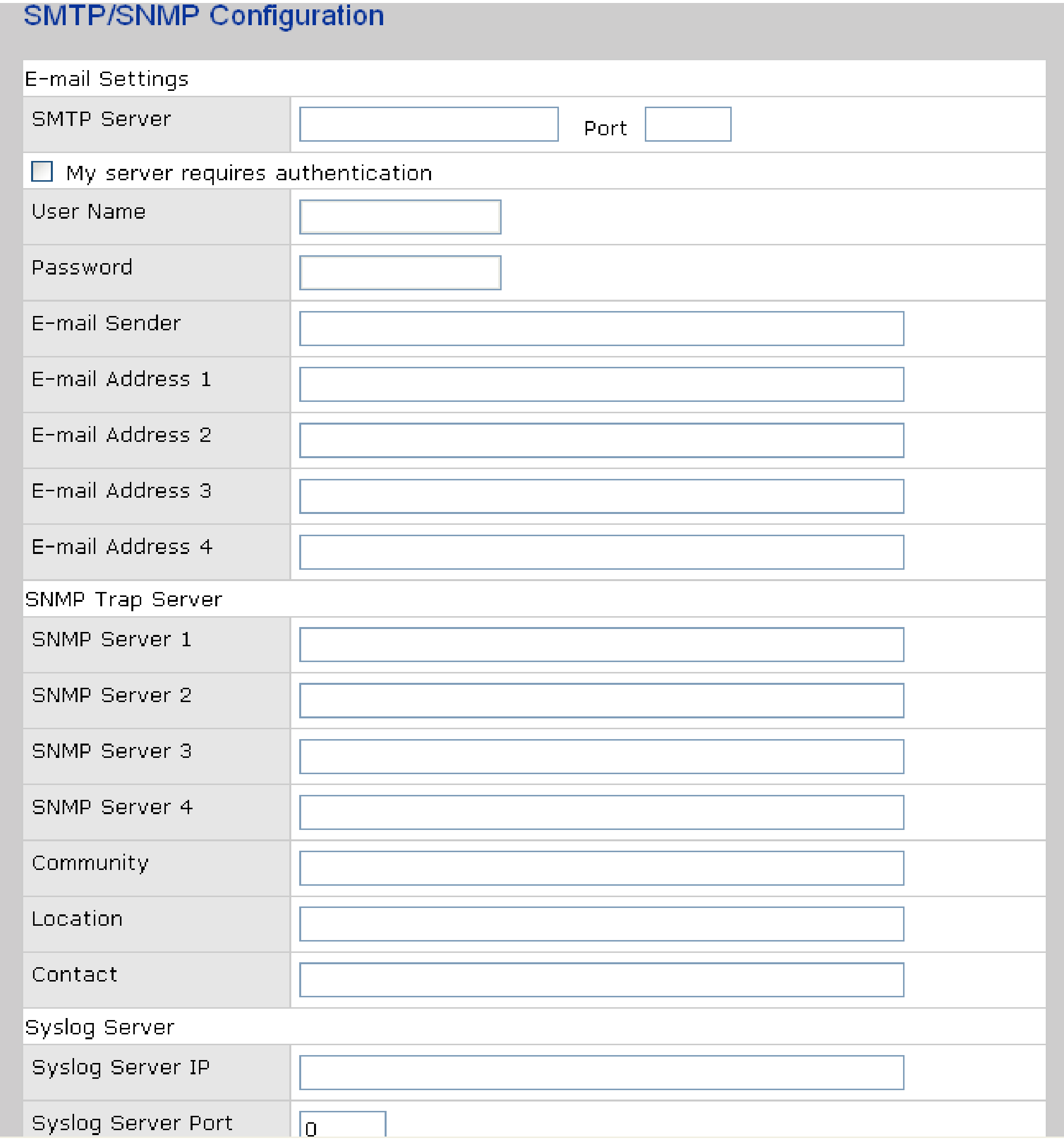
No.	Activate the IP	IP Address	Netmask
1	☐		
2	☐		
3	☐		
4	☐		
5	☐		
6	☐		
7	☐		
8	☐		
9	☐		
10	☐		
11	☐		
12	☐		
13	☐		
14	☐		
15	☐		
16	☐		

SMTP/SNMP Configuration

Email Server configuration includes the mail server's IP address or domain. If the authentication is required, specify your name and password. There are 4 Email addresses that you can specify to receive the notification.

SNMP Server configuration includes the SNMP Trap Server IP address, Community, Location and Contact. There are 4 SNMP addresses you can specify to receive the notification.

SysLog server configuration includes the server IP and server Port. This option need to use with DS-Tool.

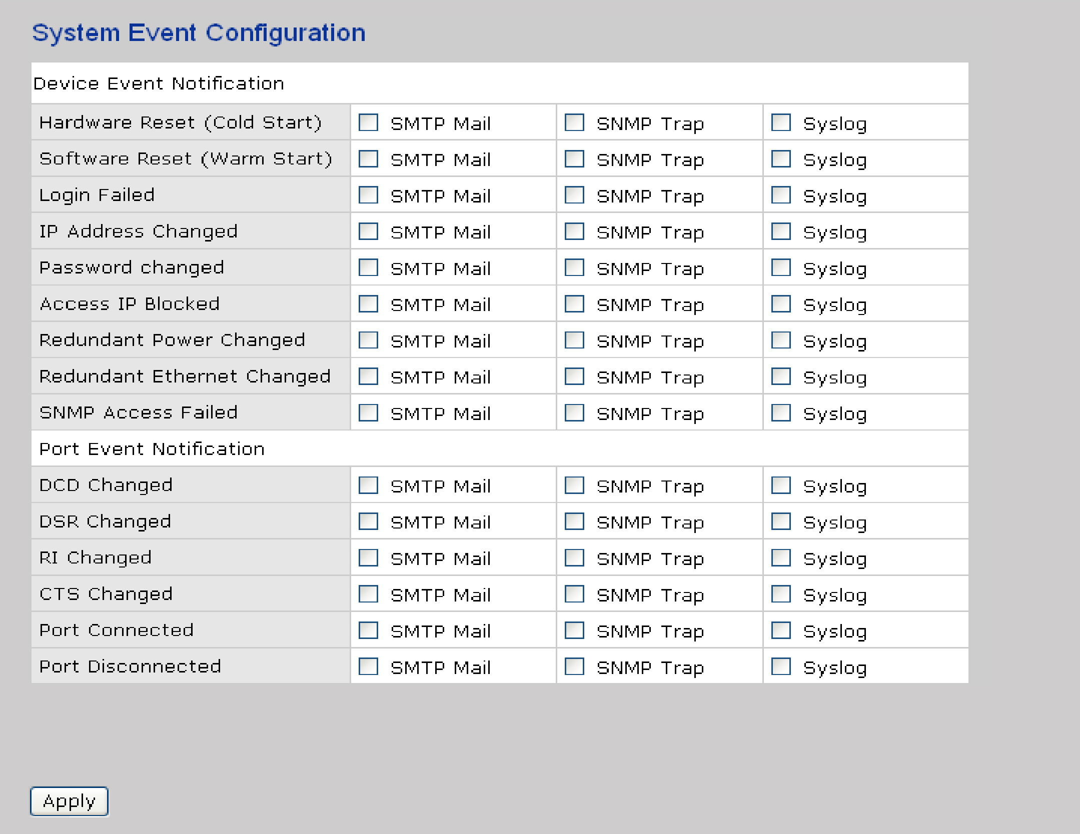


SMTP/SNMP Configuration

E-mail Settings	
SMTP Server	Port
☐ My server requires authentication	
User Name	
Password	
E-mail Sender	
E-mail Address 1	
E-mail Address 2	
E-mail Address 3	
E-mail Address 4	
SNMP Trap Server	
SNMP Server 1	
SNMP Server 2	
SNMP Server 3	
SNMP Server 4	
Community	
Location	
Contact	
Syslog Server	
Syslog Server IP	
Syslog Server Port	0

System Event Configuration

Specify the events that should be notified to the administrator. The events can be notified by E-mail, SNMP trap, or system log.



System Event Configuration

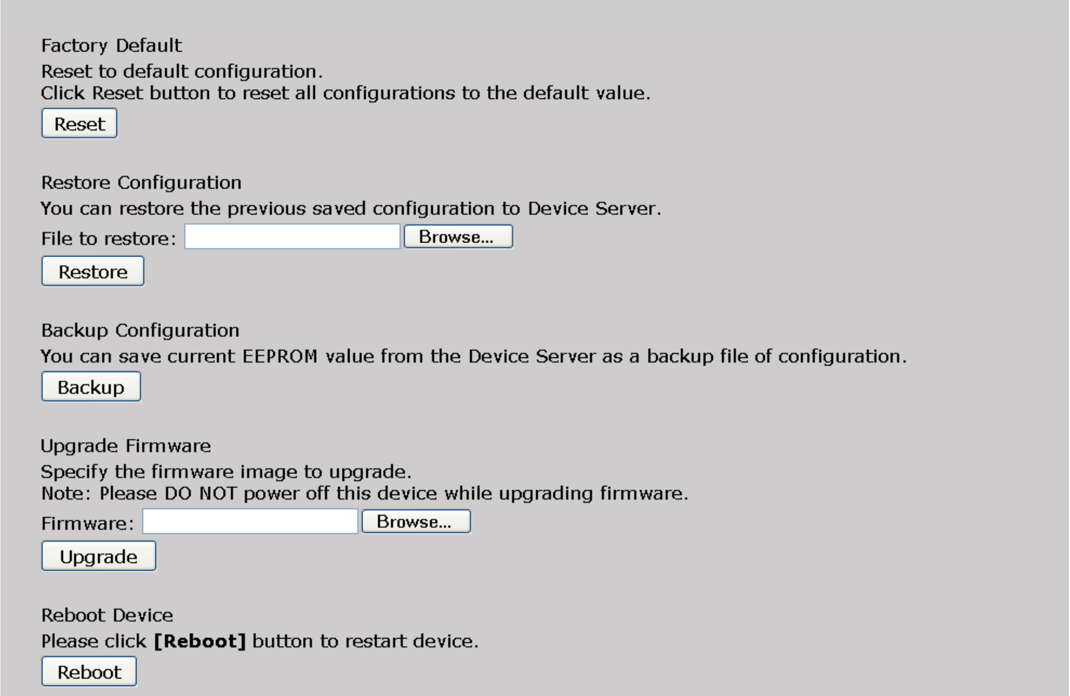
Device Event Notification			
Hardware Reset (Cold Start)	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
Software Reset (Warm Start)	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
Login Failed	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
IP Address Changed	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
Password changed	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
Access IP Blocked	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
Redundant Power Changed	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
Redundant Ethernet Changed	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
SNMP Access Failed	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
Port Event Notification			
DCD Changed	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
DSR Changed	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
RI Changed	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
CTS Changed	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
Port Connected	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog
Port Disconnected	☐ SMTP Mail	☐ SNMP Trap	☐ Syslog

The following table describes the labels in this screen.

Label	Description
Hardware Reset (Cold Start)	This refers to starting the system from power off (contrast this with warm start). When performing a cold start, DS will automatically issue an Auto warning message by sending E-mail, log information or an SNMP trap after booting.
Software Reset (Warm Start)	This refers to restart the computer without turning the power off. When performing a warm start, DS will automatically send an E-mail, log information or SNMP trap after reboot.
Login Failed	When an unauthorized access from the Console or Web interface, a notification will be sent.
IP Address Changed	When IP address of device changed, a notification will be sent.
Password Changed	When password of device changed, a notification will be sent.
Access IP Blocked	When the host accesses the device with blocked IP addresses, a notification will be sent.
Redundant	When status of power changed, a notification will be sent.

Power Change	
DCD changed	When DCD (Data Carrier Detect) signal changes, it indicates that the modem connection status has been changed. A Notification will be sent.
DSR changed	When DSR (Data Set Ready) signal changes, it indicates that the data communication equipment is powered off. A Notification will be sent.
RI changed	When RI (Ring Indicator) signal changes, it indicates an incoming call. Notification will be sent.
CTS changed	When CTS (Clear To Send) signal changes, it indicates that the transmission between computer and DCE can proceed. A notification will be sent.
Port connected	In TCP Server Mode, when the device accepts an incoming TCP connection, this event will be trigger. In TCP Client Mode, when the device has connected to the remote host, this event will be trigger. In Virtual COM Mode, Virtual COM is ready to use. A notification will be sent.
Port disconnected	In TCP Server/Client Mode, when the device lost the TCP link, this event will be trigger. In Virtual COM Mode, When Virtual COM is not available, this event will be trigger. A notification will be sent.

5.2.1.4 Save/Reboot



Factory Default
Reset to default configuration.
Click Reset button to reset all configurations to the default value.

Restore Configuration
You can restore the previous saved configuration to Device Server.
File to restore:

Backup Configuration
You can save current EEPROM value from the Device Server as a backup file of configuration.

Upgrade Firmware
Specify the firmware image to upgrade.
Note: Please DO NOT power off this device while upgrading firmware.
Firmware:

Reboot Device
Please click **[Reboot]** button to restart device.

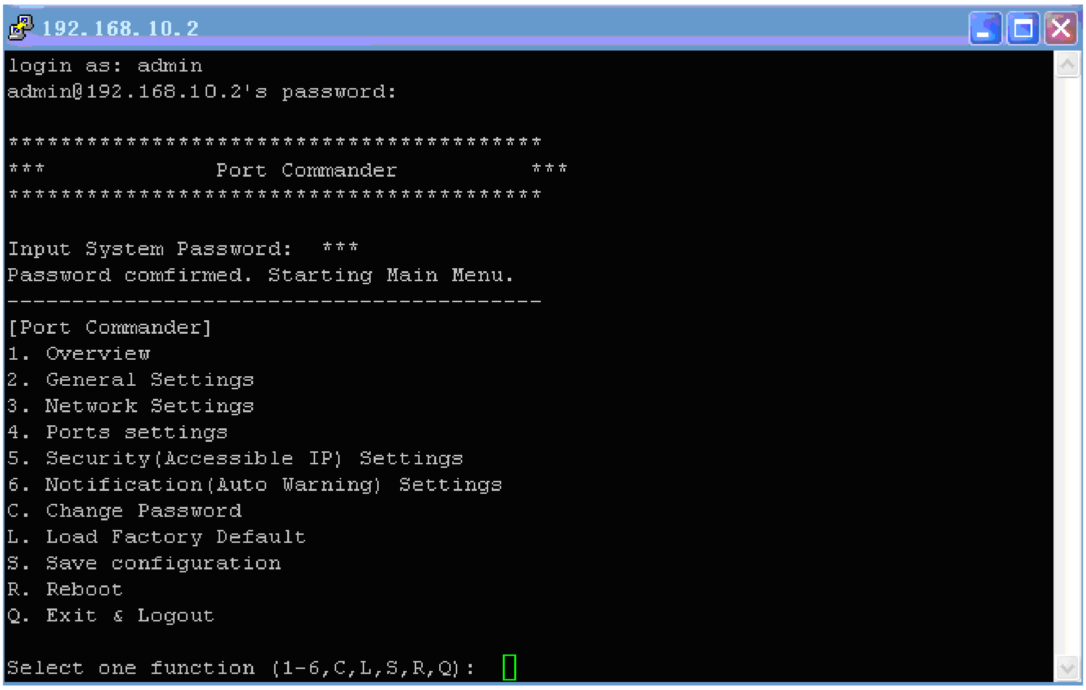
The following table describes the labels in this screen.

Label	Description
Load Factory Default	Load default configuration except settings of Network. If you want load all factory default, you should press "**Reset**" button on the device (Hardware restore).
Import Configuration	Restore the previous exported configuration.
Export Configuration	Export the current configuration to a file.
Upgrade Firmware	Upgrade to a new firmware with specified file.
Reboot Device	Reboot the device server (warm start).

5.3 Configuration by SSH Console

5.3.1 Connect to DS

You can use SSH Tool (e.g., PuTTY) to access SSH console of DS. The SSH console interface is shown below.



```
login as: admin
admin@192.168.10.2's password:

*****************************************
***             Port Commander          ***
*****************************************

Input System Password:  ***
Password comfirmed. Starting Main Menu.
-----------------------------------------
[Port Commander]
1. Overview
2. General Settings
3. Network Settings
4. Ports settings
5. Security(Accessible IP) Settings
6. Notification(Auto Warning) Settings
C. Change Password
L. Load Factory Default
S. Save configuration
R. Reboot
Q. Exit & Logout

Select one function (1-6,C,L,S,R,Q):
```

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Technical Specifications

Network Interface	
Ethernet	1x 10/100Base-T(X) LAN
connector	RJ-45
Protection	Built-in1.5KV magnetic isolation
Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, ARP/RARP, DNS, SNMP MIB II, HTTPS, SSH
WLAN Feature	
Operating Mode	Client mode
Radio Frequency Type	DSSS
Modulation	IEEE802.11b: CCK, DQPSK, DBPSK IEEE802.11g: OFDM with BPSK, QPSK, 16QAM, 64QAM
Frequency Band	America/FCC: 2.412~2.462 GHz (11 channels) Europe CE/ETSI: 2.412~2.472 GHz (13 channels)
Transmission Rate	IEEE802.11b: 1/ 2/ 5.5/ 11 Mbps IEEE802.11g: 6/ 9/ 12/ 18/ 24/ 36/ 48/ 54 Mbps
Transmit Power	IEEE802.11b/g: 16dBm
Encryption Security	WEP: (64-bit ,128-bit key supported) WPA: WPA2 :802.11i(WEP and AES encryption) PSK (256-bit key pre-shared key supported) 802.1X and Radius supported TKIP encryption
Wireless Security	SSID broadcast disable
Serial Interface	
Interface	1x RS232 / RS422 / 4(2)-Wire RS485. Which can be configured by DS-Tool
Connector	Male DB9

Baud Rate	110 bps to 230.4 Kbps
Data Bits	5, 6, 7, 8
Parity	odd, even, none, mark, space
Stop Bits	1. 1.5, 2
RS-232 signals	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
RS-422 signals	Tx+,Tx-, Rx+, Rx-,GND
RS-485 (4 wire) signals	Tx+,Tx-, Rx+, Rx-,GND
RS-485 (2 wire) signals	Data+, Data-,GND
Flow control	XON/XOFF, RTS/CTS, DTR/DSR
Protection	Built-in15KV ESD protection
LED Indicators	PWR 1(2) / Ready: 1) Red On: Power is on and booting up. Red Blinking: Indicates an IP conflict, or DHCP or BOOTP server did not respond properly. 2) Green On: Power is on and functioning normally. Green Blinking: Located by Administrator. ETH Link / ACT: Orange ON/Blinking: 10 Mbps Ethernet Green ON/Blinking: 100 Mbps Ethernet WLAN Link /ACT: Green: Link, Orange: Poor signal Serial TX / RX LEDs: Red: Serial port is receiving data Green: Serial port is transmitting data.
Power Requirements	
Power Input Voltage	PWR1: 12~48VDC in 3-pin Terminal Block PWR2: 12~48VDC in Power Jack with Power Adapter
Reverse Polarity Protection	Present at terminal block
Power Consumption	4 Watts Max
Software Utility	
Utility	DS-Tool for Windows NT/2000/XP/2003/VISTA Device discovery Auto IP report Device setting (run-time change, no rebooting) Access control list Group setting Device monitoring Serial port monitoring Log info Group Firmware update

Serial Mode	Virtual Com / TCP Server / TCP Client / UDP / Serial Tunnel TCP Alive Check Timeout Inactivity Timeout Delimiter for Data Packing Force TX Timeout for Data Packing
Multiple Link	5 Hosts simultaneous connection: Virtual Com / TCP server / TCP Client / UDP
VCOM Driver	Windows NT/2000/XP/2003/VISTA
Configuration	Web HTTPS console, SSH console, DS-Tool for Windows NT/2000/XP/VISTA
Environmental	
Operating Temperature	-10 to 55°C (14 to 131°F)
Operating Humidity	5% to 95%(Non-condensing)
Storage Temperature	-20 to 85°C (-4 to 185 F)°
Mechanical	
Dimensions(W x D x H)	72 mm(W)x 125 mm(D)x 31 mm(H)
Casing	IP-30 protection
Regulatory Approvals	
Shock	IEC60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), Level 3, EN61000-4-6 (CS), Level 3
MBTF	200,000 hours at least
Warranty	5 years